NOTES ON THE GENUS *CLERODENDRUM* (*VERBENACEAE*). XI

Harold N. Moldenke

CLERODENDRUM Burm.
Additional bibliography: Mold., Phytologia 58: 401--426. 1985.

CLERODENDRUM CAPITATUM (Willd.) Schum. & Thonn.
Additional bibliography: Mold., Phytologia 58: 417--426. 1985.
Additional citations: ZAMBIA: *Angus 2796* (N). MALAWI: *J. Buchanan 410* (L). MOZAMBIQUE: *Paulay s.n.* [VII.1887] (V--10432, V--10433). CULTIVATED: Austria: *Herb. Hort. Bot. Vindob. s.n.* (V, V, V). England: *Herb. Hort. Kew. s.n.* (K). India: *Joshi s.n.* [Bassein Bot. Gard. 25/2/11] (K, K, K). Java: *Herb. Hort. Bot. Bogor XII.B. VI.7* in part (Bz--26243, Bz--26433, Bz, N), *XV.F.16* (Bz--26318, Bz--26319, Bz, Bz, Bz, N), *XV,F.16a* (Bz--26320). MOUNTED ILLUSTRATIONS: Hook., Curtis Bot. Mag. 74 [ser. 3, 4]: pl. 4355. 1848 (Ld); Schnell & Grout de Beaufort, Contrib. Etud. Pl. Myrmecod. 41, pl. 9, fig. C & D. 1966 (Ld); H. N. Moldenke color slides 101 (Ld).

CLERODENDRUM CAPITATUM var. *CEPHALANTHUM* (Oliv.) J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 306 [as "*Clerodendron*"]. 1900; Mold., Prelim. Alph. List Inv. Names 22. 1940.
Synonymy: *Clerodendron cephalanthum* Oliv. in W. Hook., Icon. Pl. 16 [ser. 2, 6]: pl. 1559. 1887. *Clerodendron capitatum* var. *cephalanthum* Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 306 & 518. 1900. *Clerodendrum cephalanthum* Oliv. apud B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 66 & 92. 1936. *Clerodendrum capitatum* var. *cephalanthus* (Oliv.) J. G. Baker ex Mold., Alph. List Cit. 2: 607 sphalm. 1948. *Clerodendrum capitatum* var. *cephalanthum* (Oliv.) H. Huber in Brenan & al., Kew Bull. 17: 174. 1963.
Bibliography: Oliv. in W. Hook., Icon. Pl. 16 [ser. 2, 6]: pl. 1559. 1887; Oliv., Gard. Chron. 59 [ser. 2, 25]: 652. 1888; Bois, Dict. Hort. 1: 334. 1893; Gürke in Engl., Pflanzenw. Ost-Afr. C: 340. 1895; J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 306 & 518. 1900; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 101. 1901; Hemsl., Curtis Bot. Mag. 129 [ser. 3, 59]: pl. 7922. 1903; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 86, 108, & viii. 1921; Srapf, Ind. Lond. 2: 238. 1930; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 38, 66, & 92. 1936; Mold., Prelim. Alph. List Inv. Names 22. 1940; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 101. 1941; Mold., Alph. List Inv. Names 21. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 49--51, 72, & 89. 1942; Mold., Alph. List Cit. 2: 563, 565, 607, & 608 (1948), 3: 761 (1949), and 4: 983. 1949; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 116, 117, 120, 158, & 180. 1949; Synge in Chittenden, Roy. Hort. Soc. Dict. Hort., ed. 2, 1: 504 & 505. 1956; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 101. 1959; Mold., Résumé 136, 137, 141, 143, 145, 149, 150, 215, 261, 272, & 448. 1959; Dale & Greenway, Kenya Trees Shrubs 582. 1961; H. Huber

in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 440 & 443. 1963; H. Huber in Brenan & al., Kew Bull. 17: 174 & 576. 1963; Anon., Assoc. Etud. Tax. Fl. Afr. Trop. Ind. 1963: 60. 1964; Mold., Résumé Suppl. 11: 6 (1964) and 15: 6. 1967; Mold., Fifth Summ. 1: 217--220, 228, 235, 239, 240, 249, 250, 358, 442, & 461 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 207, 209, 210, 218, 225, 229, 230, 238, 240, 348, & 534. 1980; Mold., Phytologia 58: 303. 1985.

Illustrations: Oliv. in W. Hook., Icon. Pl. 16 [ser. 2, 6]: pl. 1559. 1887; Hemsl., Curtis Bot. Mag. 129 [ser. 3, 59]: pl. 7922 (in color). 1903.

According to Huber (1963) this variety can be distinguished from the typical form of the species as follows:

1. Calyx-segments marginally ciliate or fimbriate; young branches spreading-pilose or hispid; leaf-blades scabrid or glabrescent above, pilose beneath (especially on the midrib and lateral veins, rarely on the midrib only), marginally entire or coarsely sinuate-dentate, basally short-cuneate or subcordate..... *C. capitatum.*

1a. Calyx-segments, young branches, and leaves quite glabrous; leaf-blades always marginally entire, basally short-cuneate or rounded.....*C. capitatum* var. *cephalanthum.*

Collectors and various authors have described this plant as follows: A woody shrub, 1--4 m. tall, or a spiny evergreen climber, to 33 m. long, glabrous or nearly so; stems rope-like, to 1.25 cm. in diameter, producing flowering branches only near the top, hollow between the nodes, often inhabited by ants; branches armed with elongate, recurved, petiolar spines to 1.5 cm. long; branchlets tetragonal, puberulent or the ultimate ones setulose-hirtous, subglabrous in age; sap colorless; upper leaves (or sometimes all the leaves) approximate to subopposite, with the members of a pair often 1 cm. or more apart, often seemingly alternate, petiolate; petioles 0.8--2.5 cm. long, puberulent or hirtellous, subglabrate in age, often leaving a spine-like base on being shed; leaf-blades thinly coriaceous or leathery, dull dark-green, ovate-lanceolate to elliptic or obovate-elliptic, 7.5--25 cm. long, 4--9.3 cm. wide, apically obtusely apiculate or obtusely short-acuminate, basally rounded or broadly cuneate, glabrous on both surfaces and impressed-punctate beneath or glabrous above and setulose-hirtellous on the midrib beneath and otherwise glabrous, sometimes blotched; midrib stout; secondary and veinlet reticulation conspicuous beneath; inflorescence terminal or sometimes also supra-axillary just below the terminal head, cymose, capitate-umbellate or globose-capitate, 20--22.5 cm. wide during anthesis, often short-pedunculate, many-flowered; bracts papery, elliptic, reticulate, much shorter than the calyx, glabrous or only minutely puberulent, the venation not raised; flowers sweetly fragrant or odorless (probably depending on the time of day); calyx 1.2--2 cm. long, red or reddish to purplish-red, purple, or mauve-red, or else green with purple-flushed lobes even after drying, 5-fid, the tube basally obtuse and slightly narrowed, the lobes ovate-lanceolate, ascending, obscurely nervose when dried, quite glabrous; corolla elongate, hypocrateriform, white or yellowish to

"light-pink, mauve, or dull-purple" [probably the calyx, not the corolla??]. its tube slender or very slender, 7.5--10 cm. long, sometimes pale-green or -greenish, curvate, glabrous, the limb 5-lobed, about 4 cm. wide in full anthesis, the lobes oblong or oblong-lanceolate, white, much shorter than the tube; stamens exserted 3.5--4 cm. from the corolla-mouth; filaments red or reddish or else apically dull-purple and basally white; anthers dark-red or purplish-brown; style reddish or apically dull-purple and basally white; stigmas dark-purple.

Oliver's original (1887) description of this taxon is: "affinis C. *capitato* (Sch. et Thonn.), ramulis tetragonis ultimis setuloso-hirtis mox glabratis, foliis subopppositis alternisve petiolatis tenuiter coriaceis late ellipticis v. obovato-ellipticis obtusis apiculatis v. breviter obtuse acuminatis basi rotundatis late cuneatisve, supra glabris subtus in costa valida setuloso-hirtellis glabratisve reticulis venis subtus conspicuis, inflorescentia terminali globoso-capitata saepius breviter pedunculata multiflora, bracteis papyraceis reticulatis ellipticis calycibus multo brevioribus, calyce 5-fido tubo basi obtuso leviter angustato, lobis ovato-lanceolatis adscendentibus sicco obscure nervosis, corolla elongata tubo gracili glabro apice curvato, limbi lobis oblongo-oblanceolatis tube multoties brevioribus.....Folia 3--5 poll. longa, 1½--2¼ poll. lata; petiolus 1/3 -- 1 poll. longus, hirtellus moc glabratus. Flores 3 poll. longi; calyx 6--7 lin. longus." He comments that the plant is "Nearly allied to C. *capitatum*, Sch. and Thonn., of which, indeed, on more careful comparison, I think it would have been more prudent to regard it as a variety. The hairiness is variable, both of foliage and inflorescence, in C. *capitatum*, but in one large series of specimens of this plant from both E. and W. Tropical Africa I do not find the glabrous, all but evenose, calyx of the plant figured."

The variety is based on an unnumbered Kirk collection from Zanzibar and it is probable that the material in the Kew herbarium cultivated in the Palm House there and collected on May 9, 1888, and again on June 19, 1889, and again on March 25, 1903, is material grown from seeds of the original collection.. The Kew material exhibits several abnormal twigs with the upper portion flattened, the bracts enlarged and leaf-like, and the heads reduced to 1 or 2 axillary or supra-axillary flowers, or the entire inflorescence reduced to a mass of aborted bracts. The apparently scattered position of the flowers along the internodes here is noteworthy -- the entire length of the internode in some cases bearing single flowers or tiny buds which are probably flower-buds.

Thomas (1936), while correctly citing the Kirk collection as the type, for some strange reason unknown to me regards *Holst 4256* as a "Cotypus", which it certainly is not. He cites only the *Kirk s.n.* from Zanzibar, *Holst 4256* and *Schlieben 1107* from Tanganyika, and *Whyte s.n.* from Malawi.

Collectors have encountered C. *capitatum* var. *cephalanthum* in low forests, thick forests, and rainforests, woods and coppices, near running water, in the shrub layer of coastal forests, and "in small tree and tall shrub thickets in scattered-tree grasslands, at 33--

2300 m. altitude, in flower in March and from May to December, and in fruit in September, October, and December. Tanner reports that it climbs "to 100 feet up trees in deep shade and leaf mould in the spray of waterfalls". It was introduced into cultivation in England from Zanzibar in 1886.

The corollas are described as having been "white" on *Deighton 6113*, *Peter 25046*, and *Tanner 4790*, "yellowish" on *Peter 11656*, "light-pink" on *Peter 11706* "mauve" on *Tanner R.T.2502*, and "dull-purple" on *Tanner R.T.2245*. I suspect that the last three of these color descriptions may actually apply to calyxes or fruiting-calyxes rather than to corollas and occur on labels as a result of errors in transcription.

A note on *Deighton 6113* in the Berlin herbarium reads: "=*3523*, *3790*, *3417*, *D. G. Thomas 7*, *Jaeger 710*" in what is probably Berthold Thomas' handwriting.

Vernacular names recorded for *Clerodendrum capitatum* var. *cephalanthum* are "goio", "mtemba", and "yabersgi".

Baker (1900) distinguishes the variety as having the "Leaves glabrous when mature on both sides. Calyx and corolla-tube also glabrous". He cites *Bojer s.n.* and *Kirk s.n.* from Zanzibar and *Whitfield s.n.* from Sierra Leone, but the latter collection is now regarded as the type collection of *C. whitfieldii*

Huber (1963) states, in making his "new" combination, that "The above new combination is required for the forthcoming account of the family in the Revised Edition of the 'Flora of West Tropical Africa'". Actually, it was not required because it had already been made quite validly by Baker in 1900. Huber also cites Hooker's plate as "1550" instead of 1559. He cites *Deighton 3523*, *3780*. & *6113* and *Thomas 2296* from Sierra Leone, *Baldwin 9303* and *Harley 1453* from Liberia, *Aké Assi 3196* from Ivory Coast, and *Andoh 4237* and *Deighton 3417* from Ghana, noting that the plant occurs also in Kenya and Tanganyika.

Gürke (1895) comments that what he calls *C. cephalanthum* is "Der vorigen [*C. capitatum*] habituell sehr ähnlich".

Durand & Jackson (1901) also erroneously cites the Hooker plate as number "1550"; they also cite the Oliver (1888) reference to Gard. Chron. 1, 652" instead of to 59: 652.

Baker (1900) regarded the Curtis Bot. Mag. pl.4355 as "*Clerodendron capitatum*, Hook." and placed it and *C. whitfieldii* Seem., which was based on it, as synonyms of *C. capitatum* var. *cephalanthum*, but I regard *C. whitfieldii* as a valid species.

Material of *C. capitatum* var. *cephalanthum* has been misidentified and distributed in some herbaria as *C. capitatum* (Willd.) Schum. & Thonn., *C. robustum* Klotzsch, and *C. strictum* Baker. On the other hand, the *Jaasund 2093*, *Schlieben 2579* and *Tanner 2245* & *2502*, distributed as *C. capitatum* var. *cephalanthum*, actually are *C. swynnertonii* S. Moore.

Citations: SIERRA LEONE: *Deighton 6113* (B); *N. W. Thomas 1757* (Br, N), *2840* (S), *3475* (Um--150), *3848* (Um--149), *6220* (Br). GHANA: *Andoh 4237* (Br). ZAIRE: *Vanderyst 5624* (Br). KENYA: *I. R. Dale 3588* (Br); *Drunnond & Hemsley 3879* (N, S). TANZANIA: Tanganyika: *Drummond & Hemsley 3548* (B, S); *Mlcke 260* (Af); *Peter 117* [O.I.3] (B), *4108b* [O.I.122] (B), *11563* [O.III.127] (B), *11656* [O.III.128] (B),

11706 [O.III.129] (B), *17283* [O.IV.78] (B), *17672* [O.IV.99] (B), *17705* [O.IV.100] (B), *17788* [O.IV.103] (B), *18418* [O.IV.121] (B), *18970* [O.IV.138] (B), *19071* [O.IV.141] (B), *21558* [O.IV.221] (B), *21578* [O.IV.223] (B), *21638b* [O.IV.226] (B), *21837* (B), *21931* [O.IV. 235] (B), *22399* [O.IV.250] (B), *25046* [O.IV.347] (B), *25298* [O.IV. 352] **(B)**; *Schlieben 3941* (B); *Tanner R.T.2245* (Ba), *2502* (Ba, N), *4790* (Ba). MOZAMBIQUE: Gazaland: *Swynnerton 45* [Natal Herb. 10414] (Na). CULTIVATED: England: *Herb. Hort. Bot. Reg. Kew. s.n.* [Palm House, Oct. 1906] (K); *Herb. Hort. Kew. s.n.* [Palm House, March 25, 1903] (K, K, Ld--photo, N--photo); *Herb. Kew Gardens s.n.* [May 9, 1888] (K), *s.n.* [June 19, 1889] (K). MOUNTED ILLUSTRATIONS: Hemsl., Curtis Bot. Mag. 129 [ser. 3, 59]: pl. 7922 (N); Hook., Icon. Pl. 16: pl. 1559. 1887 (L, Ld).

CLERODENDRUM CAPITATUM var. *CHARIENSE* A. Chev., Etud. Fl. Afr. Cent. Franç. 1: 244--245 hyponym [as "*Clerodendron*"]. 1913; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 111 & 180. 1949.

Synonymy: *Clerodendron capitatum* var. *chariense* A. Chev., Etud. Fl. Afr. Cent. Franç. 1: 244. 1913.

Bibliography: A. Chev., Etud. Fl. Afr. Cent. Franç. 1: 244--245. 1913; A. Chev., Expl. Bot. Afr. Occid. Franc. 1: 508. 1920; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 111 & 180. 1949; Mold., Résumé 135, 261, & 448. 1959; Mold., Fifth Summ. 1: 214 & 441 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 205 & 535. 1980.

Nothing is known to me of this taxon except that it appears to be based on A. *Chevalier 8765* from shaded rocky cliffs in the region of Lake Iro, Kendegue, in Middle Chari, and A. *Chevalier 9697* from North Baguirmi, Arahil, Lower Chari, collected in August 1903. It would appear that these localities lie in what are now known as the Republic of Chad and the Central African Republic. Chevalier (1920) also cites his *no. 2764* from between Casamance and Sinédone, Sénégal, collected on January 27 or 28, 1900.

CLERODENDRUM CAPITATUM var. *CONGLOBATUM* (J. G. Baker) Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 65. 1936.

Synonymy: *Clerodendron conglobatum* J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 296. 1900. *Siphonanthus conglobata* (J. G. Baker) Hiern, Cat. Afr. Pl. Coll. Welw. 4: 840. 1900. *Siphonanthus conglobata* Hiern apud Thiselt.-Dyer, Ind. Kew. Suppl. 2: 172. 1904.

Bibliography: J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 293, 296, & 515. 1900; Hiern, Cat. Afr. Pl. Coll. Welw. 4: 840. 1900; K. Schum., Justs Bot. Jahresber. 28 (1): 495 & 496. 1902; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 43 & 172. 1904; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 65 & 92. 1936; Mold., Alph. List Inv. Names 17 & 40. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 46, 48--51, & 89. 1942; Mold., Alph. List Cit. 4: 1153. 1949; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 112--114, 116, 118, 120, & 180. 1949; Mold., Résumé 133, 136, 137, 139, 141, 143, 146, 262, 344, & 448. 1959; H. Huber in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 440 & 443. 1963; Mold., Résumé Suppl. 12: 6 (1965) and 13: 4. 1966; Mold., Fifth Summ. 1: 209, 217, 220, 221, 223, 225, 228, 233,

235, 242, 249, 250, 358, & 412 (1971) and 2: 621, 863, & 968. 1971; Mold., Phytol. Mem. 2: 200, 208, 210--213, 215, 218, 223, 225, 232, 235, 238, 240, 348, 437, & 535. 1980; Mold., Phytologia 58: 421. 1985.

This variety differs from the typical form of the species mainly in having its corolla-tubes 5--8 cm. long and glandular-pilose and the leaves (including their petioles),and especially the younger ones, often very densely hirsute with rusty-brown divergent hairs to 6 mm. long. The leaves are often very large, both opposite and whorled, with petioles to 5 cm. long.

Baker's original (1900) description of this plant is "A climbing shrub, with densely pubescent slender woody branchlets. Leaves opposite, distinctly petioled, oblong, entire, cuspidate or obtuse, 3--4 in. long, thinly hairy on both surfaces; base of petiole indurated, persistent. Flowers in dense globose terminal shortly-peduncled clusters. Calyx densely hairy, 1/3 in. long; lobes large, ovate; tube small, funnel-shaped. Corolla white; tube 1 in. long; lobes obovate, subequal, ¼ in. long. Stamens 2--3 times the length of the corolla-lobes."

The variety is based on *Welwitsch 5629* from Pungo Andongo, Angola. Collectors describe the plant as a rhizomatous subshrub or low shrub, 0.5--1 m. tall, or a scandent, woody, pilose liana to 5 m. long. sometimes high-climbing, spreading by suckers; stems 1.2--2.5 cm. in diameter at the base, with brown or violet, slightly hispid indumentum; crown open; bark pale- or dark metallic-gray, rather smooth, markedly lenticellate; branches tomentose, with decussate petiolar spines; leaf-blades pubescent on both surfaces; bracts pale-green tinged with maroon; pedicels hairy; flowers to 14 cm. long, glandular hairy, fragrant or inodorous (depending on time of day?); calyx basally green, the remainder tinged violet, brown-hairy, the lobes cream-color or greenish-white and often violet- or purple-tipped or all violet; corolla-tube slender, greenish, 5 or more cm. long, basally somewhat glandulose, the lobes white; filaments white; anthers mauve or violet to brown; fruit dry, enclosed by the fruiting-calyx.

The corollas are described as "white" by all collectors who bother to mention them, viz., *Bainbridge 727, Chancellor 269, Enti Sp.40, Fosberg 40483, Gbile & Olurunfemi FHI.20478, Louis 2226 & 6212, Norman S.18, Peter 21076, Seret 135,* and *Torre & Paiva 10570.*

Collectors have found the plant growing in shady primary forests and dense coastal thickets and in black sandy soil of wooded savannas, at altitudes of 25--1100 m., in flower from December to April, as well as in June, July, September, and October, and in fruit in October. Mrs. Norman encountered it on clay in scrub between a lakeside swamp and thin pasture over limestone in Uganda, and in the same country Chancellor found it in dense thickets a few yards from riverbanks. Fosberg speaks of it, in the Ivory Coast, as occasional in degraded mesophilous forests.

In Zambia Bainbridge reports this plant as "an occasional constituent of dense exploited mutemwa with *Croton scheffleri, Dalbergia glandulosa, Haplocoelum, Combretum celastroides, Mudulea sericea,* etc. under *Baikiaea plurijuga, Pterocarpus antunesii, Pteleopsis anisoptera,* etc. on Kalahari sand" as well as "thinly scattered on

similar sand with *Acacia ataxacantha, Dalbergia glandulosa, Grewia bicolor, Canthium frangula, Popowia, Combretum celastroides, C. elaeagnoides*, etc., under *Pterocarpus antunesii, Baikiaea, Croton gratissimus, Lonchocarpus nelsii*, etc."

Vernacular names reported for *C. capitatum* var. *conglobatum* are "boseseke", "inaolo a mbambake", "luli", "mbambake", "mbambake boliki", "mbambake e boliki", "mbambake lo boliki", "namuyanda", "shamanya", and "simwauulika".

It should be noted that Thomas (1936) regards the *Mechow 137* collection, cited below, as typical *C. capitatum* (Will.) Schum. & Thonn., but I find that its branches are plainly hairy; on *Gillet s.n.* and *Zenker 364* the stem hairs are very long and dense.

Baker (1900) distinguishes the capitate species of tropical African glorybowers as follows:(with the nomenclature updated):

1. Corolla-tube 3/4 to 1 inch long.
  2. Leaves often ternate or quaternate.....*C. acerbianum.*
  2a. Leaves always opposite.....*C. sinuatum.*
1a. Corolla-tube 1 to 1½ inches long.
  3. Plants herbaceous.....*C. eupatorioides.*
  3a. Plants fruticose.
    4. Leaves glabrous.
      5. Calyx-teeth small.....*C. schweinfurthii.*
      5a. Calyx-teeth larger.....*C. schweinfurthii* var. *bakeri.*
    4a. Leaves hairy.....*C. capitatum* var. *conglobatum.*

Thomas (1936) cites for *C. capitatum* var. *conglobatum* the following collections: from Angola -- *Antunes 187, Nolde 409, Welwitsch 5629;* from Cameroons -- *Ledermann 4391 & 5213, Mann 1957, Zenker 421, 3222, & 3285,* and *Zenker & Staudt 428;* from Fernando Po -- *Mildbraed 7043;* from Togo -- *Mildbraed 7366 & 7416;* from Uganda -- *Fyffe 125* and *Mahon s.n.;* from Tanganyika -- *Stuhlmann 1590, 1891, 2801, 3492, 3625, 3732, 3778, & 4087;* and from Malawi -- *Buchanan 1489.*

Material of *C. capitatum* var. *conglobatum* has been misidentified and distributed in some herbaria as typical *C. capitatum* (Willd.) Schum. & Thonn., *C. fischeri* Gürke, and *C. robustum* Klotzsch.

Citations: MALI: *A. Chevalier 832bis* (Br). SIERRA LEONE: *Afzelius s.n.* (S). IVORY COAST: *F. R. Fosberg 40483* (W--2580408A). GHANA: *Enti Sp.40* (W--2647908, W--2647909); *T. M. Harris s.n.* [11/1958] (Ba); *Vigne 3932* (N). NIGERIA: *Barter 342* (L, S, T, Ut--11498); *Gbile & Olorunfemi FHI.20478* (N). CAMEROONS: *Zenker 364* (B, Br, Ca--375728, Gg--151410, W--1178266), *3222* (Br, Mu--4005, S), *3285* (B, Br, Mu--4043, S, W--553671); *Zenker & Staudt 428* (S). ZAIRE: *Bredo 1532* (Br), *1565* (Br); *Callens 4574* (Cb), *4893* (Mi); *Germain 6880* (Mu); *G. Gilbert 403* (Br); *Gillet 2764* (Br), *s.n.* [Juillet 1902] (Br), *s.n.* [Août 1902] (Br, N); *Lebrun 2258* (Br, Br); *Louis 2226* (Af, Br, Vi), *2719* (Br, Ca--962338), *5894* (Br), *6022* (B, Br), *6212* (Br), *11311* (Br, N, S), *11636* (Br), *12504* (Br, W--2091093), *16067* (Br, N); *Luja s.n.* (Br); *Mestdagh 61* (Br, N); *Pittery 817* (Br, Br, N); *F. Reygaert 1095* (Br); *F. A. Rogers 26278* [Herb. Transvaal Mus. 24148] (Ld); *F. Seret 135* (Br); *Shantz 532*(W--1595629); *Vermoesen 576* (Br). UGANDA: *Chancellor 269* (B, S); *Mrs. E. M. Norman S.18* (W--2071997). TANZANIA: Tanganyika: *Peter 21076* [O.IV.199] (B, B),

22964 [O.IV.278] (B), *24035* [O.IV.317] (B), *25091* [O.IV.348] (B), *35416* [V.134] (B), *35551* [V.135] (B), *36522* [V.149] (B). ANGOLA: Loanda: *Mechow 137* (Br). Mossamedes: *Gossweiler 13442* (Ul, Ul); *Torre 8312* (Ld, Ul). ZAMBIA: *Bainbridge 690* (N), *727* (N). MALAWI: *J. Buchanan 1489* (W--807346); *Stolz 1537* (Um--148). MOZAMBIQUE: Niassa: *Torre & Paiva 10570* (Ul). CULTIVATED: Java: *Herb. Hort. Bot. Bogor. XII.B.VI.7* in part (Bz--26244, Bz--26531, Bz, Bz, N), *XV.J.A. XXXII.5* (Bz--26394, Bz--26396, Bz, Bz, N), *XV.J.A.XXXII.5a* (Bz--26396, N).

CLERODENDRUM CAPITATUM var. *CORIACEUM* (Thomas) Mold., Known Geogr. Distrib. Verbenac., ed. 1, 49 & 89 nom. nud. 1949; Mold., Résumé 272. 1959.

Synonymy: *Clerodendrum cephalanthum* var. *coriaceum* Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 66. 1936.

Bibliography: B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 66. 1936; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 49 & 89 (1942) and ed. 2, 116 & 180. 1949; Mold., Résumé 143, 272, & 448. 1959; Mold., Fifth Summ. 1: 235 & 461 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 225 & 535. 1980.

This variety differs from the typical form of the species in having thick leathery leaf-blades with the venation deeply impressed on the upper surface.

The variety is based on *Engler 1175* from West Usambara, Tanganyika, collected in 1902, and deposited in the Berlin herbarium, now doubtless destroyed. Thomas (1936) cites also *Braun 869* and *Engler 3444* from the same country.

Nothing is known to me of this taxon beyond what is given in its bibliography.

CLERODENDRUM CAPITATUM var. *RHODESIENSE* Mold., Phytologia 3: 263--264. 1950.

Bibliography: Mold., Phytologia 3: 263--264. 1950.

This variety differs from the typical form of the species in having the stems and petioles rather densely hirsutulous-pubescent with wide-spreading brownish hairs, the upper leaf-surface regularly pilose with translucent multicellular hairs, and the lower leaf-surface very densely short-pubescent, especially on the venation. The leaf-blades are membranous, ovate, 14--22 cm. long, 7--14 cm. wide, apically abruptly short-acuminate, marginally varying from sinuate-entire to coarsely and irregularly apiculate-dentate from the widest part to the apex with up to about 9 teeth per side. The petioles are 1.6--16 cm. long.

The type of this variety was collected by E. Milne-Redhead (*no. 4303*) in the Mwinilunga district of Zambia just south of Matonchi Farm in *Brachystegia* woodland on January 24, 1938, and is deposited in the Kew herbarium. Thus far the variety is known to me only from the original collection.

Citations: ZAMBIA: *E. Milne-Redhead 4303* (F--photo of type, K--type, K--isotype, K--isotype, K--isotype, Ld--photo of type, N--isotype, Qu--isotype, Sg--photo of type).

CLERODENDRUM CAPITATUM var. *TALBOTII* (Wernham) Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 65. 1936.

Synonymy: *Clerodendron talbotii* Wernham in Rendle & al., Cat. Talb. S. Niger. Pl. 90--91. 1913. *Clerodendrum talbotii* Wernh. apud B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 91. 1936.

Bibliography: Wernham in Rendle & al., Cat. Talb. S. Niger. Pl. 90--91. 1913; Fedde & Schust., Justs Bot. Jahresber. 42: 252. 1920; Prain, Ind. Kew. Suppl. 5, imp. 1, 62. 1921; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 65 & 96. 1936; Mold., Alph. List Inv. Names 20. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 45, 47--50, & 89. 1942; W. Robyns, Fl. Sperm. Parc Nat. Albert 2: 140 & 143. 1947; H. N. & A. L. Mold., Pl. Life 2: 85. 1948; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 109, 112, 113, 115, 116, 118, & 180. 1949; Mold., Résumé 133, 138, 139, 141, 143, 146, 270, & 449. 1959; Prain, Ind. Kew. Suppl. 5, imp. 2, 62. 1960; H. Huber in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 443. 1963; Mold., Fifth Summ. 1: 210, 221, 223, 228, 235, 242, & 457 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 201, 212, 213, 218, 225, 232, & 535. 1980; Mold., Phytologia 58: 422. 1985.

This variety differs from the typical form of the species in having the corolla-tube slender, more or less glabrous, only about 5 cm. long, the leaves only opposite, the petioles and leaf-blades sparingly pilose to glabrous, and the inflorescences few-flowered.

The variety is based on *Talbot 341* from Oban, Nigeria, collected in 1913, and deposited in the British Museum herbarium. It should be noted that Thomas (1936) cites as type an unnumbered talbot collection in the Kew herbarium, collected in "1914" -- obviously impossible since the taxon was described in 1913. He cites for this variety: from Nigeria -- *Talbot s.n.*; from Cameroons -- *Deistel 57*, *Ledermann 6139*, and *Mildbraed 4194*; from Angola -- *Gossweiler 9845* and *Nolde 306*; from Zaire -- *Witte 1532*; from Sudan -- *Schweinfurth 2742*; and from Tanganyika -- *Fischer 469*. It should be noted, however, that the Brussels specimen of *Witte 1532* appears to be typical *C. capitatum* (Willd.) Schum. & Thonn., and, in fact, Huber (1963) reduces the variety to synonymy under the typical form of that species.

Collectors have found *C. capitatum* var. *talbotii* growing at altitudes of 860--2300 m. Robyns (1947) describes the plant as an "Elément de l'Afrique tropicale occidentale, s'étendant vers l'Etat dans le Soudan Anglo-Egyptien et dans de Territoire du Tanganyika. C'est un arbuste souvent à fortes épines crochues, provenant de la base persistante des pétioles". He found it growing on the "plaine de lave ancienne, forêt" in the "Sous-district de la dorsale occidentale" of the Albert National Park in Zaire, flowering in April, citing only *Witte 1532* which, as stated above, I regard as representing typical *C. capitatum*. His key to the species known to him from the Albert Park is as follows:

1. Corolla-tube actinomorphic, straight, narrow, the limb slighly zygomorphic or actinomorphic; calyx-lobes 5, acute; drupes splitting into 4 mericarps when mature (Subgenus *Euclerodendron*)
   2. Calyx during anthesis 1--2 cm. long, spreading-campanulate,

deeply lobed, the lobes large, petaloid, half or more the length of the entire calyx; fruiting-calyx nearly as long as the drupe; branches hollow. Sect. *Macrocalyx*.

3. Petioles only 1--2 cm. long; corolla-tube 1.5--2 cm. long.....C. *fuscum*.

3a. Petioles 5--8 cm. long; corolla-tube 6--10 cm. long.

4. Inflorescence loosely branched; bracts linear; flowers pedicellate, the pedicels to 1.5 cm. long; densely pubescent shrubs.....C. *rotundifolium*.

4a. Inflorescence dense, capitate; bracts lanceolate and foliaceous; flowers subsessile; very sparsely pubescent or glabrescent shrubs.....C. *capitatum*.

2a. Calyx in anthesis 0.15--1 cm. long, tubular-campanulate, only slightly lobed, the lobes small, not petaloid, at most only ½ the length of the entire calyx; fruiting-calyx shorter than the drupe; branches solid (except in C. *triplinerve*).

5. Calyx short-cupuliform, the lobes deltoid and spreading (Sect. *Eurycalyx*); leaves nigrescent in drying.....C. *melanocrater*.

5a. Calyx not short-cupuliform, the lobes erect; leaves not nigrescent in drying.

6. Calyx narrowly cylindric, more or less longitudinally grooved, the lobes triangular (Sect. *Siphonocalyx*).

7. Cymes arranged in loose panicles; corolla-tube about 1 cm. long, twice as long as the calyx; leaf-blades obovate, 10--12 cm. long, 5--6 cm. wide.....C. *nuxioides*

7a. Cymes condensed into head-like corymbs; corolla-tube 3--4 cm. long, 4--7 times as long as the calyx; leaf-blades elliptic to obovate-elliptic, 20--25 cm. long, 12--13 cm. wide.....C. *schweinfurthii*

6a. Calyx infundibular-campanulate, not longitudinally furrowed, the lobes elongate and acute (Sect. *Microcalyx*).

8. Leaves in whorls of 3 or 4, the blades oblong-lanceolate to oblong-elliptic, basally attenuate, green and glabrous above, glabrous and finely punctate beneath; branches channeled; panicles subumbellate, their branches slender and spreading, green, finely puberulent; corolla-tube slender, internally glabrous.C. *triplinerve* var. *sulcatum*.

8a. Leaves opposite, their blades ovate, basally rounded to cordate, dark-brown and puberulent above, pubescent to tomentose and fawn-color to ashy beneath; panicles corymbiform and more or less dense, their branches robust and oblique, covered with a fawn-colored tomentum; corolla-tube internally pubescent.....C. *johnstoni*.

1a. Corolla-tube zygomorphic, anteriorly strongly gibbous, posteriorly split almost to the middle, the limb plainly irregular, bilabiate, the anterior lobe concave and much larger than the other lobes; drupes not splitting (Subgenus *Cyclonema*).

9. Calyx and lower leaf-surface mostly tomentose.....C. *discolor*.

9a. Calyx and lower leaf-surface pubescent pubescent or glabrous.

10. Lobes of the calyx during anthesis large, oval, rounded, separated by narrow sinuses.

11. Leaf-blades elliptic, 1½--2½ times longer than wide..... *C. myricoides.*

11a. Leaf-blades lanceolate, about 3 times as long as wide.... *C. myricoides* var. *camporum.*

10a. Lobes of the calyx during anthesis more or less deltoid and narrow, separated by rounded sinuses..... *C. myricoides* var. *niansanum.*

Citations: NIGERIA: *Talbot 341* [Mo. Bot. Gard. Type Photo A.840] (Gz--photo of type, N--photo of type).

CLERODENDRUM CAPITATUM var. *VANDERYSTI* Mold., Phytologia 3: 407. 1951.

Synonymy: *Clerodendrum capitatum* var. *vanderystii* Mold. apud Lewalle, Bull. Jard. Bot. Nat. Belg. 42: 76 & [230]. 1972.

Bibliography: Mold., Phytologia 3: 407. 1951; St. John, Nomencl. Pl. 127. 1958; Mold., Résumé 141 & 448. 1959; Mold., Fifth Summ. 1: 228 & 232 (1971) and 2: 863. 1971; Lewalle, Bull. Jard. Bot. Nat. Belg. 42 [Trav. Univ. Off. Bujumb. Fac. Sci. C.20]: 76 & [230]. 1972; Mold., Phytol. Mem. 2: 218, 222, 391, & 535. 1980.

This variety differs from the typical form of the species in having the corolla-tube glabrous, the calyx mostly red when mature, and the branchlets, twigs, and petioles mostly very conspicuously long-hispid with stiff brownish hairs 3--4 mm. long and standing at right angles to the surface.

The variety is based on *Hyacinthe Vanderyst 9418* from Ipamu, Zaire, collected in May of 1921 and deposited in the Brussels herbarium. The inflorescence-heads are many-flowered. The bracts are rose-color or purple. The corollas are described as "white" on *Lebrun 4148.*

The *Renier 79* and *79a* collections, cited below, consist of some material of this variety mixed with inflorescences of *C. grandifolium* Gürke and something non-verbenaceous.

Clerodendrum capitatum var. *vanderysti* has been collected in anthesis in May, June, July, and October. Lewalle cites his *no. 4091* from Burundi.

Material of this variety has been misidentified and distributed in some herbaria as *C. rotundifolium* Oliv.

Citations: ZAIRE: *Callens 1561* (N), *2113* (N), *4891* (Ld); *Gentil s.n.* [Juil. 1902] (Br); *Lebrun 4148* (Br, Br); *Lescrauwaet 24* (Br), *82* (Br); *Renier 79* in part (Br), *79a* in part (Br); *Vanderyst 9319* (Br, N), *9418* (Br--type, Ld--photo of type, N--photo of type), *15674* (Br, N), *s.n.* [Region de Kimpako 1912] (Br); *Wellens 292* (Br). BURUNDI: *Lewalle 4091* (Ac, Gz), *4484* (Gz).

CLERODENDRUM CARNOSULUM J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 311 [as "*Clerodendron*"]. 1900; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 81 & 92. 1936.

Synonymy: *Clerodendron carnosulum* J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 311. 1900. *Siphonanthus assurgens* Hiern, Cat. Afr. Pl. Coll. Welw. 1: 845 & 846. 1900. *Clerodendron assurgens* (Hiern) K. Schum., Justs Bot. Jahresber. 28 (1): 496. 1902. *Clerodendron*

assurgens K. Schum apud Mold., Alph. List Inv. Names 16 in syn. 1942. *Clerodendrum canosulum* Bak. ex Naidu, Phytologia 54: 301 sphalm. 1983.

Bibliography: J. G. Baker in Thiselt.-Dyer, Fl. Trop. Afr. 5: 295, 311, & 520. 1900; Hiern, Cat. Afr. Pl. Coll. Welw. 1: 845--846. 1900; K. Schum., Justs Bot. Jahresber, 28 (1): 495 & 496. 1902; Thiselt.-Dyer, Ind. Kew. Suppl. 2: 43 & 172. 1904; B. Thomas, Engl. Bot. Jahrb. 86: [Gatt. Clerod.] 45, 81, & 92. 1936; Mold., Alph. List Inv. Names 16 & 40. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 47, 48, 50, & 89 (1942) and ed. 2, 113, 115, 118, & 180. 1949; Mold., Résumé 139, 141, 146, 260, 344, & 448. 1959; H. Huber in Hutchins. & Dalz., Fl. W. Trop. Afr., ed. 2, 2: 439 & 441. 1963; Mold., Résumé Suppl. 9: 3. 1964; Mold., Fifth Summ. 1: 223, 228, 242, 439, & 441 (1971) and 2: 621 & 863. 1971; Mold., Phytol. Mem. 2: 213, 218, 232, & 535. 1980; Naidu, Phytologia 54: 301. 1983; Mold., Phytologia 57: 38. 1985.

An erect or climbing shrub; branches drooping, pubescent; leaves decussate-opposite, petiolate, the upper ones reduced in size; leaf-blades rather fleshy when fresh, subcoriacous and very fragile when dried, broadly ovate or cordate-ovate to ovate-lanceolate or suborbicular, 3--12 cm. long, 1--10 cm. wide, marginally entire, sparsely puberulent on the upper surface and drying blackish-green, densely puberulent but not tomentose beneath; cymes few-flowered, long-pedunculate, borne in the axils of the upper much reduced leaves and forming a very lax terminal panicle; calyx crimson, 4 mm. long and wide, pubescent, the tube campanulate, lobed to ½ or more of its length, the lobes broad; corolla light-blue or violet, the tube short, the lowest lobe 1.2 cm. long; stamens 2.5 cm. long; fruit not splitting at maturity.

The species was based by Baker on *Welwitsch 5701, 5702,* & *5706* from Pongo Andonga, Angola, deposited in the Kew herbarium. Of these collections Thomas (1936) has selected *no. 5702* to be the type. The species, with its plainly zygomorphic blue or violet corollas, is plainly a member of the Subgenus *Cyclonema*. Thomas (1936) cites only *Welwitsch 5702* from Angola, *Staudt 872* from Cameroons [which he designates as "Cotypus"], and *Mildbraed 3181* from Zaire. Huber (1963) cites from Cameroons: *Daramola FHI.40539, Maitland 1648, Onochie FHI.34885,* and *Staudt 872*. He separates this species from its relatives in the subgenus in western tropical Africa as follows:

1. Leaves sessile, mostly whorled, the blades marginally entire or serrate, obovate-elliptic to obovate-lanceolate, 7--14 cm. long, 2.5--6 cm. wide, glabrescent or shortly puberulent; stems erect, subherbaceous.....*C. alatum.*

1a. Leaves distinctly petiolate, marginally mostly entire.

2. Leaf-blades glabrous on both surfaces except for a minute pubescence on the venation beneath, thinly membranous.....*C. violaceum.*

2a. Leaf-blades pubescent or tomentose, at least all over the under surface, subcoriaceous and very fragile when dry, rather fleshy when fresh.

3. Leaf-blades sparsely puberulent, blackish-green above when

dry, puberulent but not tomentose beneath; leaves opposite, the blades broadly ovate to ovate-lanceolate, 3--12 cm. long, 1--10 cm. wide; calyx lobed to ½ or more of its length..... *C. carnosulum.*

3a. Leaf-blades thinly tomentellous and when dry gray to dull-brown above, densely tomentellous beneath; leaves opposite or ternate, the blades broadly ovate to elliptic, 3--6 cm. long, 2--4 cm. wide; calyx lobed to almost 1/3 its length.....*C. tomentellum.*

Citations: ZAIRE: *Håkanson s.n.* [1/10/1931] (S). ANGOLA: *Welwitsch 5702* [Mo. Bot. Gard. Type Photos 2982] (Gz--photo of isotype, N--photo of isotype, W--photo of isotype).

CLERODENDRUM CARYOPTEROIDES Mold., Phytologia 4: 286. 1953.

Bibliography: Mold., Phytologia 4: 286. 1953; Mold., Biol. Abstr. 27: 3121. 1953; Mold., Resumé 175 & 448. 1959; G. Taylor, Ind. Kew. Suppl. 12: 36. 1959; Mold., Fifth Summ. 1: 299 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 239 & 535. 1980.

A shrub; branches and branchlets very slender, the younger parts densely puberulent; twigs very slender, densely puberulent; nodes not annulate; principal internodes 0.8--3.5 cm. long; leaves decussate-opposite; petioles very slender, 4--15 mm. long, densely puberulent; leaf-blades submembranous, dark-green above, lighter beneath, ovate, 3--5 cm. long, 1.5--2.5 cm. wide, apically rather long-acuminate, marginally serrate from about the widest point to below the apex, basally acute or subtruncate, finely puberulent above, densely puberulent beneath; midrib filiform, flat above, prominulous beneath; secondaries filiform, 4 or 6 per side, ascending, hardly arcuate, ending in the teeth, flat above, slightly prominulous beneath; veinlet reticulation indiscernible; inflorescence terminal, cymose, much abbreviated, the cymes densely many-flowered, about 1 cm. long and 1.5 cm. wide; calyx campanulate, its tube about 2 mm. long, its 5 lobes 3--4 mm. long, ovate, apically long-attenuate, externally finely puberulent; corolla mauve, tubular, the tube broad, 3.5--4 mm. long, densely white-villous at the mouth, the limb somewhat 2-lipped, the lobes 1--1.5 mm. long, broadly ovate, apically acute; stamens inserted near the apex of the corolla-tube, included by the limb; style terminal, 5 mm. long, glabrous; ovary subrotund, 1 mm. long and wide, externally glabrous.

This species is based on *Alfred Pételot 4345* from the plain of Jarres, at about 1100 m. altitude, in the province of Xieng Khouang, Laos, collected in May of 1931, and deposited in the Britton Herbarium at the New York Botanical Garden. The plant bears great similarity to the genus *Caryopteris* and may eventually prove, when fruit is seen, to belong to that genus. It is known to me thus far only from the original collection.

Citations: LAOS: *Pételot 4345* (N--type).

CLERODENDRUM CAULANTHUM Exell in Good & Exell, Journ. Bot. Brit. 68, Suppl. 2: 143 [as "*Clerodendron*"]. 1930; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 70 & 92. 1936.

Synonymy: *Clerodendron caulanthum* Exell in Good & Exell, Journ. Bot. Brit. 68, Suppl. 2: 143. 1930

Bibliography: Good & Exell, Journ. Bot. Brit. 68, Suppl. 2: 143. 1930; A. W. Hill, Ind. Kew. Suppl. 8: 54. 1933; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 41, 70, & 92. 1936; Fedde & Schust., Justs Bot. Jahresber. 58 (2): 329. 1938; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 48 & 89 (1942) and ed. 2, 114 & 180. 1949; Mold., Résumé 140 & 448. 1959; Mold., Fifth Summ. 1: 227 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 232 & 535. 1980.

A shrub; branches sarmentose, often bearing long spines; branchlets pulverulent, often spinose; leaves decussate-opposite; petioles to 2.5 cm. long, glabrous, transversely rugulose; leaf-blades narrowly obovate, to 22 cm. long and 11 cm. wide, apically rather abruptly acuminate, marginally entire, basally acute, very sparsely pilosulous or subglabrate throughout, nitidulous beneath; flowers produced in dense fascicles on the trunk beneath the leaves; pedunles absent or only to 3 mm. long; pedicels 7--10 mm. long, minutely pubescent; calyx-tube infundibular, 5 mm. long, externally minutely pubescent, the lobes deltoid, 1.5 mm. long, 1.2 mm. wide; corolla white, its tube to 15 mm. long, 3 times as long as the calyx, externally subglabrous, the lobes broadly ovate, 4 mm. long, 2.5 mm. wide; stamens plainly exserted about 15 mm. beyond the corolla-mouth.

This species is based on *Gossweiler 6507*, "not frequent" in shady woods along the Mungovi Jola River, Buco Zau, Mayumbe, in Kongo, Angola, flowering in July, deposited in the British Museum herbarium. The type specimen has been re-determined in an unknown hand as "*Clerodendron baheri* Gurke" [=*bakeri* Gürke].

Exell (1930) comments that "This species is remarkable for its inflorescences, which consist of practically sessile cymes borne on the trunk. According to the collector, spines occur, though none are present on the dried specimen. Other cauliflorous species of this genus are *C. wildemanianum* Exell.....from the Belgian Congo, which differs, however, in having peduncles 4--5 cm. long, and *C. obanense* Wernh., from Nigeria, which has similar, nearly sessile inflorescences, but a much larger calyx and a corolla-tube about three times as long." Thomas (1936) adds: "Diese Art ist mir nur aus der Beschreibung bekannt; danach weicht sie von der vorigen [*C. wildemannianum*] nur in der Länge des Pedunculus ab; da dieser aber praktisch bei *C. Wildemannianum* in einer Länge von 4 bis 11 cm variiert, wird er auch ganz kurz sein können, wie für *C. caulanthum* angegeben; also dürfte die Art mit der vorigen identisch sein."

Citations: ANGOLA: Kongo: *Gossweiler 6705* [Mo. Bot. Gard. Type Photos A.847] (Go--photo of type, Ld--photo of type, N--photo of type, W--photo of type).

CLERODENDRUM CAULIFLORUM Vatke, Linnaea 43: 538--539 [as "*Clerodendron*"]. 1882; Mold., Résumé 155 & 448. 1959 [not *C. cauliflorum* DeWild., 1920, nor Willd., in herb.].

Synonymy: *Clerodendron cauliflorum* Vatke, Linnaea 43: 538. 1882.

Bibliography: Vatke, Linnaea 43: 538--539. 1882; Jacks. in Hook.

f. & Jacks., Ind. Kew., imp. 1, 1: 560. 1893; A. W. Hill, Ind. Kew. Suppl. 6: 49. 1926; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 70 & 92. 1936; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 560. 1946; Mold. in Humbert, Fl. Madag. 174: 159, 162--163, & 267, fig. 24 (6 & 7). 1956; Mold., Résumé 155 & 448. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 560. 1960; Mold., Fifth Summ. 1: 259 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 248 & 535. 1980; Mold., Phytologia 58: 185. 1985.

Illustrations: Mold. in Humbert, Fl. Madag. 174: 159, fig. 24 (6 & 7). 1956.

A shrub, to 5 m. tall; stems rather smooth-barked, gray, to at least 3.5 cm. in diameter, bearing the flowers toward their base; branchlets and twigs very slender, light-gray, rather sparsely and prominently lenticellate, obscurely and obtusely tetragonal or subterete, glabrous, the youngest parts often more or less compressed and canaliculate or sulcate; nodes not annulate; principal internodes 1.5--5 cm. long; leaves decussate-opposite; leaf-scars rather large and prominent, corky-margined; petioles slender, 3--17 mm. long, mostly much abbreviated, subglabrous, deeply canaliculate above; leaf-blades chartaceous or coriaceous, uniformly bright-green on both surfaces, not brunnescent, oblong or oblong-elliptic, varying to slightly obovate, 8--23 cm. long, 2.5--8 cm. wide, apically subcaudate- or caudate-acuminate, marginally entire but slightly undulate, basally attenuate to acute or rounded, glabrous and shiny on both surfaces; midrib slender, flat or subimpressed above, prominent beneath; secondaries very slender, 7--10 per side, flat or subprominulent above, prominent beneath, divergent-ascending, conspicuously arcuate-joined near the margins on both surfaces; vein and veinlet reticulation very abundant and fine, conspicuously prominulent on both surfaces; inflorescence subsessile, cymose-fasciculate, borne in dense leafless clusters on the naked wood of the stems, many-flowered; peduncles obsolete; pedicels slender, firm, 1--7 cm. long, glabrous, brunnescent, often recurved; calyx subcampanulate or obconic, lightly chartaceous, brunnescent, 2--2.5 cm. long, apically to 1 cm. wide, glabrous, striate-venose with mostly subparallel veins, its rim conspicuously 5- or 6-lobed, the lobes erect, firm, ovate or deltoid, unequal, 4--6 mm. long, apically very acute; corolla hypocrateriform, white, its tube very narrowly cylindric, 6--8 cm. long, subincurved, apically infundibular, the limb about 2.5 cm. wide, the lobes subequal, about 1.5 cm. long and 7 mm. wide, apically obtuse, glabrous on both surfaces; stamens, fruiting-calyx, and fruit not known.

The species is based on *Hildebrandt 2973* from Nosy-be island off the northeast coast of Madagascar, collected in May of 1879. It has been found growing in woods and "sur le trone", in anthesis in May and July.

Vatke's original (1882) description is: "Glabrum crebre lenticellatum, ramulis obtuse quadrangulis sulcatis, foliis oppositis breviter petiolatis oblongis coriaceis caudato-acuminatis basi attenuatis repandis margine planis, cymis subsessilibus cauliflorís nudis compactis multifloris approximatis, calyce subcampanulato subcolorato

amplo quinquedentato, dentibus deltoideis acutissimis, corollae tubo anguste longissimo subincurvo, superne infundibulari, limbi lobis subaequalibus....Nossibé Madagascariae arbor cauliflora fl. lacteis Maio 1879 fl. Petioli ad 1,7 cm longi. Lamina ad 2,3 dm longa, ad 8 cm lata. Pedicelli ad 1,7 cm longi. Calyx ad 2,5 cm longus. Corolla c. 1 dm longa."

To distinguish this species from other Madagascar taxa see in these notes under *C. baronianum* Oliv.

The *C. cauliflorum* of DeWildeman and the homonym incorrectly accredited to Willdenow are synonyms of *C. wildemannianum* Exell.

It should be noted that Jackson (1893) cites Vatke's original publication of *C. cauliflorum* as "1880-82", but the page involved was actually published in 1882.

Citations: NOSY-BE ISLAND: *Hildebrandt 2973* (E--photo of isotype, F--photo of isotype, K--isotype, Ld--photo of isotype, N--photo of isotype, P--isotype). MADAGASCAR: *Bernier 208* (P); *Decary 14587* (N, P).

CLERODENDRUM CERAMENSE Mold., Phytologia 4: 46--47. 1952.

Synonymy: *Clerodendrum ceramensis* Mold., in herb.

Bibliography: Mold., Phytologia 4: 46--47. 1952; Mold., Résumé 198 & 448. 1959; G. Taylor, Ind. Kew. Suppl. 12: 36. 1959; Mold., Fifth Summ. 1: 332 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 322 & 535. 1980.

A tree, about 6 m. tall; branchlets medium-stoutish, obtusely tetragonal, very densely yellow-lanuginous with more or less subappressed antrorse hairs; nodes not annulate; principal internodes 4--8 cm. long; leaves decussate-opposite; petioles rather stout, 4--8.5 cm. long, very densely yellow-lanuginous with subappressed antrorse hairs; leaf-blades submembranous, dark-green on both surfaces, ovate, 12--18 cm. long, 8.5--11 cm. wide, apically acuminate, marginally entire, basally rounded or subtruncate, rather densely short-pubescent above, much more densely so beneath; midrib stoutish, mostly flat and densely pubescent above, prominent beneath; secondaries slender, 5 or 6 per side, ascending, very slightly arcuate, mostly flat above and prominulous beneath; veinlet reticulation abundant, the tertiaries numerous and subparallel; inflorescence aggregated at the ends of the branchlets, paniculate, densely yellow-pubescent throughout; bracts numerous, elliptic, 1.4--2.8 cm. long, 5--10 mm. wide, densely yellow-puberulent on both surfaces, stipitate, apically acute, basally obtuse, not in any way obscuring the flowers; cymes densely many-flowered, several times dichotomous; calyx campanulate, about 1 cm. long or slightly less, very densely short-pubescent throughout with yellowish-brown hairs, its rim deeply 5-lobed, the lobes ovate, 4--6 mm. long, apically acuminate; corolla white, its tube very narrow, 2--3 cm. long, externally very sparsely puberulous-pilosulous, the limb 5-lobed, the lobes 5--7 mm. long, apically rounded, dorsally rather densely pilosulous; stamens and pistil exserted about 1.5 cm. from the mouth of the corolla-tube.

This species is based on *Rutten 1865* from Vai-veti, Kawagebied, in western Ceram in the Molucca Islands, collected on November 10,

1918, and deposited in the Herbarium Bogoriense at Buitenzorg.

The type collection was originally identified at Buitenzorg as *C. cunninghamii* Benth. and later as *C. macrostegium* Schau. The latter, however, has very large leaves and broad bracts which effectively hide the flowers, while the former has narrower and longer calyxes. *Clerodendrum macrocalyx* H. J. Lam differs at once in its much longer calyxes and *C. lanuginosum* Blume in its shorter corolla-tubes. *Clerodendrum ceramense* is perhaps most closely related to *C. philippinense* Elm., which, however, also seems to have uniformly shorter corollas.

Clerodendrum ceramense is known to me thus far only from the original collection.

Citations: MOLUCCA ISLANDS: Ceram: *Rutten 1865* (Bz--20012--type, Ld--photo of type, N--fragment of type, N--photo of type, Ut--80827--isotype).

CLERODENDRUM CERNUUM Wall. ex Sweet, Hort. Brit., ed. 1, 1: 322 nom. nud. 1826.

Synonymy: *Clerodendron cernuum* Wall. ex Schau. in A. DC., Prodr. 11: 675 nom. nud. 1847. *Clerodendron cernuum* "Wall. ex Steud." apud Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 94 & 108. 1921.

Bibliography: Sweet, Hort. Brit., ed. 1, 1: 322. 1826; Loud., Hort. Brit., ed. 1, 247. 1830; Sweet, Hort. Brit., ed. 2, 415. 1830; Loud., Hort. Brit., ed. 2, 247. 1832; Bojer, Hort. Maurit. 255--256. 1837; G. Don in Loud., Hort. Brit., ed. 3, 247. 1839; G. Don in Sweet, Hort. Brit., ed. 3, 550. 1839; Steud., Nom. Bot. Phan., ed. 2, 1: 382. 1840; Schau. in A. DC., Prodr. 11: 675. 1847; Buek, Gen. Spec. Syn. Candoll. 3: 106. 1858; H. C. A. Fischer, Beitr. Vergleich. Morph. Poll. 10 & 46. 1890; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 560. 1893; Briq. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 4 (3a): 138. 1895; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 94 & 108. 1921; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 54 & 89. 1942; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 560. 1946; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 126 & 180. 1949; Mold., Résumé 161, 215, & 448. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 560. 1960; Mold., Fifth Summ. 1: 272 & 358 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 259, 348, & 535. 1980.

Nothing is known to me of this taxon except that Sweet (1826), Loudon (1830), and Steudel (1840) all say that it is native to the East Indies ["E. Indies"] -- not to eastern India as one might suppose because of its being credited to Wallich's Numerical List of plants in the East India Company's herbarium, although Bojer (1837) does make that assertion ["Pat. Inde orientale"] when he states that it was in cultivation in the royal botanic garden at Pamplemousse in 1837 and describes it as an "Arbrisseau. Fl. Mars, Mai". Loudon (1830) says that it was introduced into cultivation in England in 1823, while Sweet (1826) gives the date as 1822. These two latter authors call the plant the "drooping clerodendrum".

Steudel's work is sometimes cited as "1841", the titlepage date, but the part that concerns us here was issued in 1840.

CLERODENDRUM CHAMAERIPHES Wernham, Journ. Bot. Brit. 54: 230 [as "*Clerodendron*"]. 1916; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 70 & 92. 1936.

Synonymy: *Clerodendron chamaeriphes* Wernham, Journ. Bot. Brit. 54: 230. 1916.

Bibliography: Wernham, Journ. Bot. Brit. 54: 230. 1916; Fedde & Schust., Justs Bot. Jahresber. 44: 253. 1922; A. W. Hill, Ind. Kew. Suppl. 6: 49. 1926; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 40, 70, & 92. 1936; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 47 & 89 (1942) and ed. 2, 113 & 180. 1949; Mold., Résumé 139 & 448. 1959; Mold., Fifth Summ. 1: 223 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 213 & 535. 1980; Mold., Phytologia 58: 297. 1985.

A subshrub; stems subherbaceous, subterete, minutely greenish-pubescent; leaves decussate-opposite; petioles divided into 2 parts, the basal 1 cm. persisting as an indurated, rather woody, subhorizontal spine, the upper portion herbaceous, slender, ascending, about 5 cm. long, subquadrangular in cross-section, scabridous, irregularly and minutely hirtellous-puberulent; leaf-blades papery, elliptic, 10--15 cm. long, 5.5--9 cm. wide, apically very shortly acuminate (the acumen itself very obtuse), basally mostly obtuse, glabrous except for the very minutely hirtellous larger veins on both surfaces, rather densely punctate beneath; secondaries about 5 per side; veinlet reticulation prominent beneath; inflorescence terminal, thyrsoid, 15 cm. long, 10 cm. wide, loose; bracts setaceous, almost minute, inconspicuous; calyx campanulate, externally glabrous, the tube 8 mm. long, the lobes triangular, 2 mm. long, apically acute; corolla glabrous, the tube slender, exserted 1.5 cm. from the calyx, the lobes subequal, broadly ovate-elliptic, 5--6 mm. long, 4.5 mm. wide, apically obtuse-rotundate to subacute.

The species is based on *Bates 663* from Bitye, Cameroons, collected on December 10, 1914. Wernham (1916) comments that it is "Related to *C. Buchholzii* Gürke, but the corolla-tubes are relatively much longer in our species". Thomas (1936) comments that "Diese Art ist mir nur aus der Beschreibung bekannt; danach dürfte sie mit der vorigen [*C. mannii* J. G. Baker] identisch sein".

Nothing further is known to me of this taxon.

CLERODENDRUM CHARTACEUM Mold., Bull. Torrey Bot. Club 77: 394--395. 1950.

Bibliography: Mold., Bull. Torrey Bot. Club 77: 394--395. 1950; E. J. Salisb., Ind. Kew. Suppl. 11: 56. 1953; Mold. in Humbert, Fl. Madag. 174: 148, 172--173, 175, & 267, fig. 27 (1 & 2). 1956; Mold., Résumé 155 & 448. 1959; Mold., Fifth Summ. 1: 259 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 248 & 535. 1980; Mold., Phytologia 58: 185. 1985.

Illustrations: Mold. in Humbert, Fl. Madag. 174: 175, fig. 27 (1 & 2). 1956.

A shrub, to 3 m. tall; branchlets and twigs slender, sparse, grayish, corky, glabrous, prominently lenticellate, obtusely tetragonal, the youngest somewhat compressed and sulcate; nodes not annulate; principal internodes abbreviated, 0.5--4 cm. long; leaves de-

cussate-opposite; petioles stoutish, 5--9 mm. long, glabrous; leaf-blades chartaceous, uniformly light-green on both surfaces, not at all brunnescent in drying, varying from elliptic to oblanceolate or obovate, 8--13.7 cm. long, 3--5.2 cm. wide, apically short-acuminate, marginally entire, basally acute, glabrous on both surfaces; midrib slender, prominulous above, prominent beneath; secondaries very slender, 7--12 per side, prominulous above, prominent beneath, divergent, only slightly arcuate-ascending, conspicuously but irregularly arcuate-joined near the margins on both surfaces; vein and veinlet reticulation very abundant and prominulous above, only the larger parts prominulous beneath; inflorescence apparently terminal or subterminal, cymose, usually only 1- or 2-flowered, with half of the cyme not developing; peduncles obsolete or about 5 mm. long, sometimes the inflorescence with one developed (and one aborted) main peduncle-like branch to 10 cm. long, somewhat compressed, often somewhat ampliate apically, stramineous, glabrous; pedicels stout, 1--2 cm. long at time of anthesis, stramineous, glabrous, often curved; bractlets linear-setaceous; calyx subcoriaceous, tubular-obconic, 4.3--8.3 cm. long, apically 1.3--2.5 cm. wide, stramineous, glabrous, shiny, venose (especially on the upper half), its rim deeply 5-lobed, the lobes ovate, erect, firm, 1--1.5 cm. long, apically mucronate-acute, the 2 or 3 main veins ending at the very tip of the lobe; corolla infundibular, white, suffused with wine-red or rose at the throat, the tube rather broadly cylindric for 3/4 of its length, then broadly ampliate in funnelform fashion, 11--15 cm. long, externally glabrous, the limb 5--7.5 cm. wide, the 5 lobes apparently ascending-erect, broadly elliptic or obovate, 2--3 cm. long, 1.5--2.8 cm. wide, apically obtuse or rounded, glabrous on both surfaces; stamens and style included by the corolla-limb; filaments rose; anthers violet; pistil green; fruiting-calyx and fruit not known.

This species is based on *Perrier 10262* from woods, at 500 m. altitude, Masoela, on the west coast of Madagascar, collected in August of 1912 and deposited in the Paris herbarium. The species has been encountered at 500--1300 m. altitude, in flower in January, August, and November. The corollas are described as having been "white and rose" on *Humbert 3423*.

A key for distinguishing this species from its Madagascar relatives will be found in this present series of notes under *C. baronianum* Oliv.

Citations: MADAGASCAR: *Cours 168* (N, P); *Humbert 3423*(P, P); *G. W. Parker s.n.* (K); *Perrier 10262* (E--photo of type, F--photo of type, Ld--photo of type, N--photo of type, P--type).

CLERODENDRUM CHEVALIERI Mold., Phytologia 4: 175--176. 1953.

Synonymy: *Clerodendron velutinum* A. Chev., Etud. Fl. Afr. Cent. Franç. 1: 245--246 hyponym. 1913 [not *C. velutinum* Thomas, 1936].

Bibliography: A. Chev., Etud. Fl. Afr. Cent. Franç. 1: 245--246. 1913; Mold., Biol. Abstr. 27: 887 & 2026. 1953; Mold., Phytologia 4: 175--176. 1953; Hauman, Assoc. Etud. Tax. Fl. Afr. Trop. Ind. 1954; Mold., Résumé 140, 271, & 448. 1959; G. Taylor, Ind. Kew. Suppl.

12: 26. 1959; Mold., Fifth Summ. 1: 227 & 459 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 217 & 535. 1980.

This species is based on *Chevalier 7936, 8102, 8199,* & *8201bis* from "adaptation aux feux de brousse" at Ndellé, upper Chari, Central African Republic, collected between April 8 and 20, 1903, and *Chevalier 8745* & *9082* from thickets on granite in the region of Lake Iro, Timmé, in the country of the Noubas, Koulfe, lower Chari, collected on June 29, 1903. Since Chevalier speaks of the corollas as blue, I assume that the species belongs in the subgenus *Cyclonema*. The Thomas homonym, *Clerodendrum velutinum* Thomas, is a valid species in Tanganyika for which the specific epithet, "*velutinum*", is not invalidated by the earlier use of it by Chevalier because Chevalier's name was published without description and therefore has no nomenclatural standing. Similarly, *C. chevalieri*, being based on it, is nomenclaturally invalid under the present Code.

Nothing else is known to me of this taxon.

CLERODENDRUM CHEVALIERI var. *SUBINTEGRUM* (A. Chev.) Mold., Phytologia 4: 176. 1953.

Synonymy: *Clerodendron velutinum* var. *subintegrum* A. Chev., Etud. Fl. Afr. Cent. Franç. 1: 246 hyponym. 1913.

Bibliography: A. Chev., Etud. Fl. Afr. Cent. Franç. 1: 246. 1913; Mold., Biol. Abstr. 27: 887 & 2026. 1953; Mold., Phytologia 4: 176. 1953; Hauman, Assoc. Etud. Tax. Fl. Afr. Trop. Ind. 1954; Mold., Résumé 140, 271, & 448. 1959; Mold., Fifth Summ. 1: 227 & 459 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 217 & 535. 1980.

Nothing is known to me of this taxon except that it is said to be native to the Central African Republic and is based on *Chevalier 8580* & *8629* from between Goundi and Kouma, in the land of the Sara, Fort Archambault, in lower Chari, collected between June 6 and 15, 1903.

CLERODENDRUM CHLORISEPALUM Merr. ex Mold., Known Geogr. Distrib. Verbenac., ed. 1, 59 & 89 nom. nud. 1942; Dansk Bot. Arkiv 23: 87. 1963.

Synonymy: *Clerodendrum chlorisepalum* "Merr. ex Moldenke" apud A. Hansen, Excerpt. Bot. A.7: 607. 1964.

Bibliography: Mold., Known Geogr. Distrib. Verbenac., ed. 1, 59 & 89 (1942) and ed. 2, 126 & 180. 1949; Mold., Résumé 175 & 448. 1959; Mold., Résumé Suppl. 3: 20. 1962; Mold., Dansk Bot. Arkiv 23: 87. 1963; A. Hansen, Excerpt. Bot. A.7: 607. 1964; Hocking, Excerpt. Bot. A.8: 227. 1965; G. Taylor, Ind. Kew. Suppl. 14: 34. 1970; Mold., Fifth Summ. 1: 294, 299, & 461 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 284, 291, & 535. 1980.

A shrub, 1--1.5 m. tall; branches and branchlets slender, pale, obtusely tetragonal, glabrous, shiny; principal internodes abbreviated; leaves decussate-opposite; petioles slender, 1.5--3.5 cm. long, mostly glabrous or subglabrous; leaf-blades thinly membranous, elliptic, 6--19 cm. long, 2.5--6.5 cm. wide, apically acuminate, marginally entire or subrepand, basally acute, glabrous on both surfaces; inflorescence terminal, solitary, paniculate, 10--30 cm. long, 5--15

cm. wide, lax, glabrous throughout, the peduncles, rachids, and pedicels very slender; bractlets linear, 2--8 mm. long, glabrous; calyx campanulate, 6--10 mm. long, 6--8 mm. wide, glabrous, deeply 5-fid, the lobes apically acute; corolla hypocrateriform, white, the tube 2 cm. long, the limb 5-lobed, to 2.5 cm. wide, the lobes elliptic, 13--14 mm. long, 4 mm. wide.

This species is based on *Pételot 8485* from sandy places along the road from Laokay to Chapa, Tonkin, North Vietnam, collected on September 25, 1943, and deposited in the Britton Herbarium at the New York Botanical Garden.

The plant has been found growing on shrubby savannas, on limestone outcrops, scattered in evergreen forests, and in predominantly tropical evergreen forests on moist shady hillsides, at 100--1500 m. altitude, in flower in August and September. The flowers are described as "pendulous" by Larsen and "slightly scented" by Bunchuai. The corollas are said to have been "white" by both these collectors.

Citations: THAILAND: *Bunchuai 980* [Herb. Roy. For. Dept. 23821] (Ld); *Congdon 180* (Ac); *K. Larsen 8515* (S). VIETNAM: Tonkin: *Pételot 6401* (N), *8485* (N--type).

CLERODENDRUM CITRINUM Ridl., Journ. Fed. Malay States Mus. 5: 165 [as "*Clerodendron*"]. 1915; Mold., Résumé 179 & 448. 1959.

Synonymy: *Clerodendron citrinum* Ridl., Journ. Fed. Malay States Mus. 5: 165. 1915. *Clerodendrum citrosum* Ridl. ex Mold., Known Geogr. Distrib. Verbenac., ed. 1, 60 & 89 sphalm. 1942.

Bibliography: Ridl., Journ. Fed. Malay States Mus. 5: 165. 1915; Prain, Ind. Kew. Suppl. 5, imp. 1, 61. 1921; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 60 & 89 (1942) and ed. 2, 138 & 180. 1949; Mold., Résumé 179 & 448. 1959; Prain, Ind. Kew. Suppl. 5, imp. 2, 61. 1960; Mold., Résumé Suppl. 3: 20 & 28. 1962; Mold., Fifth Summ. 1: 304 & 358 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 295, 348, & 535. 1980; Mold., Phytologia 57: 36. 1985.

A bushy hardwood shrub, to 2 m. tall, with a ring of stout hairs at the nodes just above the leaf-axils; leaves decussate-opposite; leaf-blades herbaceous, obovate, 13 cm. long, 7 cm. wide, apically acuminate, marginally irregularly lobed, basally cuneate, glabrous or nearly so, scurfy-pustular or glandular-whitish beneath; inflorescence terminal, paniculate, lax, 10 cm. long and wide; pedicels short; calyx red, the lobes lanceolate, 2 mm. long, pubescent; corolla red, 1.7 cm. long, pubescent, the tube slender, the lobes oblong, apically rounded, marginally ciliate, turning yellowish or lemon-yellow, "whitish-red in age [fide Furtado]; stamens 4; filaments filiform, 3 cm. long; anthers oblong, dorsifixed, with a dorsal groove.

This species is based on *Ridley 5753* from Koh Pennan, Malaya. Ridley (1915) asserts that it is "Allied to *C. paniculatum*, Linn. differing in the colour of the flowers, which are pubescent and the cuneate leaf base". He notes "Slightly scented" (presumably the flowers). Furtado claims that the peduncles are "with branches", probably referring to a branched panicle.

Furtado's material, cited below, was originally from Taiping, but he asserts that his November 18, 1927, material was taken from "wild" plants.

The species has been collected in flower in November and in fruit in June. The Burkill collection, cited below, was originally distributed as *C. paniculatum* L.

Citations: THAILAND: *Haniff & Nur 4290* (W--photo). MALAYA: Kelantan: *Corner SFN.33527* (W--photo, W--photo, W--photo). PERAK: *Burkill 13949* (Ca--346224). Singapore: *Furtado s.n.* [Lawn M, Nov. 18, 1927] (Ca--343120). CULTIVATED: Singapore: *Furtado s.n.* [Lawn F, 27/9/28] (Ca--360657). MOUNTED CLIPPINGS: Ridl., Journ. Fed. Malay States Mus. 5: 165. 1915 (W).

CLERODENDRUM COCHINCHINENSE Dop in Lecomte, Notul. Syst. 4: 9 [as "*Clerodendron*"]. 1920; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 59 & 89. 1942.

Synonymy: *Clerodendron cochinchinense* Dop in Lecomte, Notul. Syst. 4: 9. 1920. *Clerodendrum cochinchinensis* Altschul, Drugs Foods 247 sphalm. 1973.

Bibliography: Dop in Lecomte, Notul. Syst. 4: 9. 1920; A. W. Hill, Ind. Kew. Suppl. 6: 49. 1926; Fedde & Schust., Justs Bot. Jahresber. 48 (1): 497. 1927; Dop in Lecomte, Fl. Gén. Indo-chine 4: 853 & 878--879. 1935; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 59 & 89 (1942) and ed. 2, 136 & 180. 1949; Mold., Résumé 175 & 448. 1959; Mold., Fifth Summ. 1: 299 (1971) and 2: 863. 1971; Altschul, Drugs Foods 247. 1973; Mold., Phytologia 28: 455 (1974) and 31: 395. 1975; Mold., Phytol. Mem. 2: 291, 384, 391, & 535. 1980.

A subshrub, 0.75--1 m. tall; branches finely pubescent; leaves decussate-opposite or at the summit of the branches sometimes alternate, variable; petioles about 7 cm. long, canaliculate above, slightly pubescent; leaf-blades membranous-chartaceous to subcoriaceous, oval to elliptic or elliptic-oblong, 20--25 cm. long, 9--10 cm. wide, apically rounded and shortly acuminate, basally generally truncate, sometimes hastate with short side lobes or almost cordate, rarely obtuse or rounded, marginally entire or irregularly dentate to sinuate-dentate, glabrous throughout or slightly pubescent on the venation beneath; venation rounded-prominent, the secondaries 20, slender, somewhat curvate, anastomosing in loops near the margins; tertiaries subparallel; veinlet reticulation very slender; inflorescence terminal, paniculate, leafless, perhaps pendent, subglabrous, 20--30 cm. long, 10--12 cm. wide, the ramifications slender, apically trichotomous; cymes 3--5-flowered; bracts very small, linear, caducous, 3--4 mm. long; bractlets subobsolete; pedicels slender, 8--10 mm. long; calyx red or purple, campanulate, 8 mm. long, glabrous, the tube 3 mm. long, the lobes oval, apically acute, 5 mm. long, 1-veined, basally 2 mm. wide; corolla white, 20 mm. long, the tube cylindric, 10 mm. long, the lobes spatulate, 10 mm. long, apically obtuse; stamens red, long-exserted; filaments glabrous; anthers oblong; style slender; stigma shortly bifid; ovary glabrous; fruit shiny, black, 1 cm. in diameter, surmounting the fruiting-calyx which is red and 1.5 cm. in diameter.

No definite type was designated by Dop for this species, but he cites for it in his 1920 work *Germain 87, Godefroy 897, Harmand 959, Pierre 1954,* and *Thorel 219* from Cochinchina, Vietnam. In his 1935 work he cites unnumbered collections of Clemens and of Poilane from Annam, of Evrard and of Godefroy from Cambodia, and of Chevalier, Fleury, Germain, Godefroy, Harmand, Lefèvre, Pierre, Poilane, and Talmy from Cochinchina, Vietnam.

The species has been found growing in secondgrowth forests, in flower in December. Walker agrees that the calyx is red, but asserts that the stamens are white. Poilane reports that the plant is used by natives as a children's medicine, the vernacular name being "cây leo trang".

Material of *C. cochinchinense* has been misidentified and distributed in some herbaria as *C. inerme* Gaertn.

Citations: VIETNAM: Annam: *Poilane 22111* (S). Cochinchina: *Germain s.n.* (Ca--54817); *Talmy s.n.* (B); *Thorel 219* (B--cotype, Ca--38113--cotype, F--photo of cotype, Ld--photo of cotype, N--cotype, N--photo of cotype, S--cotype, Sg--photo of cotype); *E. H. Walker 8038* (W--2395290).

CLERODENDRUM COLEBROKIANUM Walp., Repert. Bot. Syst. 4: 114 [as "*Clerodendron*"]. 1845; Mold., Résumé 261. 1959.

Synonymy: *Clerodendron glandulosum* Colebr. ex Wall., Numer. List [49], no. 1806 hyponym. 1829; Voigt, Hort. Suburb. Calcut. 466. 1845 [not *C. glandulosum* Lindl., 1844]. *Clerodendron colebrokianum* Walp., Repert. Bot. Syst. 4: 114. 1845. *Clerodendron foetidum* β *integrifolium* Hassk., Retzia 1: 60--61. 1855. *Clerodendron ixoraefforum* Hassk., Retzia 1: 60. 1855. *Clerodendron colebrookianum* Walp. apud C. B. Clarke in Hook. f., Fl. Brit. India 4: 594. 1885. *Clerodendrum colebrookianum* Walp. ex H. Hallier, Meded. Rijks Herb. Leid. 37: 78. 1918. *Clerodendron colebrookianum* var. *typicum* H. J. Lam, Verbenac. Malay. Arch. 272. 1919. *Clerodendrum glandulosum* Wall. ex Mold., Prelim. Alph. List Inv. Names 23 in syn. 1940. *Clerodendrum colebrookeanum* Walp. ex Mold., Prelim. Alph. List Inv. Names 19 in syn. 1940. *Clerodendron colebrookianum* Wall. ex Mold., Prelim. Alph. List Inv. Names 19 in syn. 1940. *Clerodendron glandulosum* "Colebr. ex Wall." apud Biswas. Indian For. Rec. ser. 2 Bot., 3: 41. 1941. *Clerodendrum glandulosum* "Colebr. ex Lindl." ex Anon., Kew Bull. Gen. Ind. 77. 1959. *Clerodendron foetidum* var. *integrifolium* Hassk. ex Mold., Résumé 263 in syn. 1959. *Clerodendrum glandulosum* "Colebr. ex Walp." apud Deb, Bull. Bot. Surv. India 3: 314. 1961. *Clerodendron colebrookiana* Nair & Rehman, Bull. Nat. Bot. Gard. Lucknow 76: 14 sphalm. 1962. *Clerodendrum colebrokkianum* Walp. ex Mehra & Bawa, Chromosoma 25: 94 sphalm. 1968. *Clerodendron colebrockianum* Walp. ex R. J. Moore, Reg. Veg. 68: 71. 1970. *Clerodendron glandulosum* Wall. ex Mold., Phytol. Mem. 2: 386 in syn. 1980. *Clerodendron colebrookeanum* Wall., in herb.

Bibliography: Wall., Numer. List [49], no. 1806. 1829; Steud., Nom. Bot. Phan., ed. 2, 1: 383. 1840; Lindl. in Andr., Bot. Reg. 30: pl. 19. 1844; Voigt, Hort. Suburb. Calcut. 466. 1845; Walp., Repert. Bot. Syst. 4: 108 & 114. 1845; Schau. in A. DC., Prodr. 11: 672--673.

1847; Hassk., Retzia 1: 60--61. 1855; Buek, Gen. Spec. Syn. Candoll. 3: 106. 1858; C. Muell. in Walp., Ann. Bot. Syst. 5: 711. 1860; W. J. Hook., Curtis Bot. Mag. 88 [ser. 3, 18]: pl. 5294. 1862; Bocq., Adansonia, ser. 1 [Baill., Rec. Obs. Bot.] 3: 214. 1863; Gamble, Man. Indian Timb., ed. 1, 299 & 504. 1881; C. B. Clarke in Hook. f., Fl. Brit. India 4: 594. 1885; Watt, Dict. Econ. Prod. India 2: 372. 1889; Kuntze, Rev. Gen. Pl. 2: 505. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 560. 1893; Millsp., Field Mus. Publ. Bot. 1: 386. 1898; Gamble, Man. Indian Timb., ed. 2, imp. 1, 543--544. 1902; Brandis, Indian Trees, imp. 1 & 2, 507 (1906) and imp. 2a, 507. 1907; Gamble in King & Gamble, Journ. Asiat. Soc. Beng. 74 (2 extra) [Mat. Fl. Malay Penins. 21]: 826 & 837--838. 1908; Brandis, Indian Trees, imp. 3, 507. 1911; Craib, Kew Bull. Misc. Inf. 1911: 443. 1911; Craib, Contrib. Fl. Siam Dicot. 165. 1912; Fedde & Schust., Justs Bot. Jahresber. 39 (2): 319. 1913; H. Hallier, Meded. Rijks Herb. Leid. 37: 78. 1918; H. J. Lam, Verbenac. Malay. Arch. 271--272 & 363. 1919; Bakh. in Lam & Bakh., Bull. Jard. Bot. Buitenz., ser. 3, 3: 75, 87, 108, & viii. 1921; Brandis, Indian Trees, imp. 4, 507. 1921; Rodger in Lace, List Trees Shrubs Burma, ed. 2, 132. 1922; Ridl., Fl. Malay Penins. 2: 629. 1923; S. Moore, Journ. Bot. Brit. 63: Suppl. 81. 1925; Stapf, Curtis Bot. Mag. 151: pl. 9082. 1926; J. M. Cowan, Rec. Bot. Surv. India 12: 70. 1929; P'ei, Mem. Sci. Soc. China 1 (3): 158--159. 1932; Wangerin, Justs Bot. Jahresber. 54 (1): 1170. 1932; Dop in Lecomte, Fl. Gén. Indo-chine 4: 851 & 860--861. 1935; B. Thomas, Engl. Bot. Jahrb. 68: [Gatt. Clerod.] 11. 1936; Fletcher, Kew Bull. Misc. Inf. 1938: 405 & 425. 1938; Kanjilal, Das, Kanjilal, & De, Fl. Assam, imp. 1, 3: 485--486 & 488--489. 1939; Mold., Lilloa 4: 331. 1939; Mold., Prelim. Alph. List Inv. Names 19, 20, & 23. 1940; L. H. & E. Z. Bailey, Hortus Second, imp. 1, 188. 1941; Biswas, Indian For. Rec., ser. 2, 3: 41. 1941; Fedde & Schust., Justs Bot. Jahresber. 60 (2): 572. 1941; Mold., Suppl. List Comm. Vern. Names 10. 1941; Mold., Alph. List Inv. Names 16, 17, & 21. 1942; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 54--56, 59--61, 63, 72, & 89. 1942; Mold., Phytologia 2: 98. 1945; Mold., Alph. List Cit. 1: 27 & 105. 1946; Mold., Alph. List Inv. Names Suppl. 1: 6. 1947; H. N. & A. L. Mold., Pl. Life 2: 54 & 59. 1948; Mold., Alph. List Cit. 2: 359, 558, 559, 581, 607, 625, & 626 (1948), 3: 879, 936, & 971 (1949), and 4: 996, 1005, 1006, 1096, & 1102. 1949; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 124, 126, 128, 131, 136--139, 143, 158, & 180. 1949; Kitamura in Kihara, Scient. Res. Jap. Exped. Nepal 1: 209. 1955; Synge in Chittenden, Roy. Hort. Soc. Dict. Gard., ed. 2, 1: 505. 1956; Mattoon, Pl. Buyers Guide, ed. 6, 100. 1958; Anon., Kew Bull. Gen. Ind. 77. 1959; Kitamura, Fauna Fl. Nepal 209. 1959; Mold., Résumé 159, 161, 165, 169, 175, 177, 179, 187, 197, 215, 261, 263, 265, 272, 418, & 448. 1959; Mold., Résumé Suppl. 1: 11. 1959; Nath, Bot. Surv. South. Shan States 305. 1960; Deb, Bull. Bot. Surv. India 3: 314. 1961; Hundley & Ko in Lace, Trees Shrubs Burma, ed. 3, 202. 1961; Panigrahi & Naik, Bull. Bot. Surv. India 3: 377. 1961; Mold., Résumé Suppl. 3: 30 (1962) and 4: 7. 1962; Nair & Rehman, Bull. Nat. Bot. Gard. Lucknow 76: 14 & 16. 1962; Legris, Trav. Sect. Scient. Inst. Franç. Pond. Hors 6: 186, 502, & 561. 1963; Mold., Dansk Bot. Arkiv 23: 88, fig. 2. 1963; Rao & Joseph, Bull.

Bot. Surv. India 7: 149. 1965; Matthew, Bull. Bot. Surv. India 8: 164. 1966; Yamazaki in Hara, Fl. East. Himal. 268. 1966; Bodhwar & Fernandez, Edible Wild Pl. Himal. 284. 1968; Deb, Sengupta, & Malick, Bull. Bot. Soc. Beng. 22: 199 & 210. 1968; Mehra & Bawa, Chromosoma 25: 90--91, 93, & 94, fig. 7. 1968; Mold., Résumé Suppl. 16: 9, 19, & 20. 1968; Deb, Sengupta, & Malick, Bull. Bot. Surv. India 11: 199. 1969; Mehra & Bawa, Biol. Abstr. 50: 2708. 1969; Rao & Verma, Bull. Bot. Surv. India 11: 410. 1969; R. J. Moore, Reg. Veg. 68: 71. 1970; Brandis, Indian Trees, imp. 5, 507. 1971; Mold., Fifth Summ. 1: 267, 269--272, 282, 287, 294, 299, 304, 322, 329, 358, 442, 444, 446, 448, 461, & 462 (1971) and 2: 773 & 863. 1971; Stainton, For. Nepal xv, 66, 77, & 166, fig. 120. 1972; L. H. & E. Z. Bailey, Hortus Second, imp. 18, 188. 1974; L. H. & E. Z. Bailey, Hortus Third 285. 1976; Hocking, Excerpt. Bot. A.28: 260. 1976; Mold., Phytologia 33: 372 (1976) and 36: 39. 1937; Mold., Phytol. Mem. 2: 257--259, 270, 271, 277, 284, 291, 295, 312, 313, 320, 348, 384, 386, & 535. 1980; Mold., Phytologia 50: 258. 1982; Reis & Lipp, New Pl. Sources Drugs 251. 1982; Mold.,Phytologia 52: 330 (1983), 54: 238--240 (1983), and 58: 197, 198, 211, 338, 339, 344, 345, & 408. 1985.

Illustrations: Stapf, Curtis Bot. Mag. 151: pl. 9082 (in color). 1926; Mold., Dansk Bot. Arkiv 23: 88, fig. 2. 1963; Mehra & Bawa, Chromosoma 25: 93, fig. 7. 1968; Stainton, For. Nepal fig. 120 (in color). 1972.

An evergreen bush or tall, stout, ornamental shrub, rarely a small tree, 1.2--6 m. tall, with a globose crown and disagreeable smell, often growing in clumps; stem diameter to 8.5 cm.; branches and branchlets very stout, pronouncedly tetragonal with rather blunt angles, glabrate, often more or less lenticellate, very pithy, not twiggy, the young shoots noticeably downy; pith large, tetragonal, white; bark shining white or silvery-gray; wood soft, gray; leaf-scars very large and prominent, corky; nodes usually not annulate; principal internodes 1.5--6.5 cm. long; leaves decussate-opposite, clustered at the tips of the branchlets; petioles stout, subterete or slightly flattened and canaliculate above, brunneous in drying, 3.5--20 cm. long, usually about equaling in length the diameter of the leaf-blade, glabrate, often with a cluster of glands at the apex, often collapsing basally when picked; leaf-blades membranous or chartaceous, rather uniformly dark-green on both surfaces, ovate or broadly ovate to shallowly cordate-ovate or subrotund-ovate, 9--50 cm. long, 14--22 cm. wide, often as long and wide as the length of the petiole, apically acute, marginally entire or obscurely wavy, basally cordate or subcordate to subtruncate, very minutely puberulent above with extremely sparse and obscure hairs or (when mature) subglabrous or glabrous, minutely puberulent beneath (especially on the larger venation), usually with 2 glands at the basal sinus; midrib flat or subprominulent above, very prominent and with a few basal glands beneath; secondaries slender, 5--9 per side, arcuate-ascending, joined in many loops near the margins, flat above, prominent beneath, with glands; vein and veinlet reticulation abundant, flat above, prominulent beneath; inflorescence axillary and terminal, composed of rather numerous, broad, corymbiform, compound cymes,

their branches green or yellow-green, minutely sericeous-puberulent; peduncles elongate, 5--20 cm. long, stout, firmly ascending, terete, hollow, brunneous, minutely puberulent; terminal inflorescences large, loosely paniculate-thyrsoid, spreading, 10--60 cm. wide; cymes broad, compact, compound, corymbiform, fastigiate, densely many-flowered, often subtended by a pair of caducous leaf-like bracts to 5 cm. long and 3 cm. wide, ovate, stipitate; bractlets small, caducous; pedicels short; flowers fragrant; calyx small or very small, 3--6 mm. long, green or yellow-green to pink or red, externally glabrate or pubescent, often with 1 or a few green glands, 5-lobed, the lobes attenuate from a broad base to the acuminate apex; corolla white or turning pinkish or rose, hypocrateriform, about 3.3 cm. long, externally glabrous, the tube slender, 2.1--2.5 cm. long or longer, often about 9 times the length of the calyx, the limb about 1.2 cm. wide, regularly 5-lobed, the lobes linear-oblong or lanceolate, about 6 mm. long, apically subacute, spreading, marginally revolute; filaments white; anthers gray or brown; pollen grains prolate 70 x 50 mu, the apocolpium diameter 14 mu, the exine 4.8 mu thick, the ectine surface spinulate, the interspinal area psilate; style white, exserted; fruiting-calyx accrescent, fleshy, subpatelliform or cupuliform, green or red, usually somewhat shorter than the mature fruit, 8--9 mm. wide, externally minutely puberulent, the rim shallowly 4-toothed or 4-lobed, the lobes eventually much reflexed; fruit drupaceous, at first green or greenish to blue-green, finally blue to torquoise- or dark-blue when ripe, glossy, subglobose-tetragonal, 5--8 mm. long, 7--10 mm. wide, apically compressed, 4-lobed or 4-parted, composed of four 1-seeded pyrenes; chromosome number: 2n = 52 plus 2 B-satellites.

The species is based on *Wallich 1806* collected in the Calcutta Botanical Garden from material sent from Pundua by M. R. Smith. Walpers (1845) asserts that Pundua is in eastern India, but Fletcher (1938) locates it in Indochina.

Kuntze (1891) claims that *C. glandulosum*, proposed by Wallich in "1828" [really in 1829], was validated by Lindley in 1844, while *C. colebrokianum* was not published by Walpers until "1844-1848" [actually in 1845]. Fletcher (in herb.) agrees. However, it does not seem likely to me that Lindley's binomial is actually the valid name for what is now called *C. colebrokianum* because it does not seem to be based on Wallich's binomial at all. Lindley does not refer to Wallich's binomial nor to his collection number, the nomenclatural type, and it seems obvious from the context of Lindley's notes that his plant was a red- or scarlet-flowered species with the leaf-blades "subdentatis". Schauer (1847) regarded it as a separate and valid species.

Clerodendrum colebrokianum is a member of Schauer's Section *Squamata*.

The *Herb. Hort. Bot. Bogor. 1904*, cited below, may possibly be the actual holotype of Hasskarl's *C. foetidum β integrifolium*.

Clerodendrum colebrokianum is found from Pakistan, Nepal, and India eastward to Burma, southern China, Indochina, Thailand, Malaya, Sumatra, and Timor. Kitamura (1955) gives its distribution as "Him-

alaya: from Nepal to Sikkim; Khasia Mts., Burma, Malay Peninsula, Indo-china", citing a collection from Nepal.

Collectors have found the species growing in forests and virgin jungles, in dense trailside scrub, at the edge of clearings, on open slopes, in thickets and *Pinus khasya* plantations, open areas, open margins of evergreen forests, along rivers, in wet grassland, and in scrub clearings, at 50--1800 m. altitude, in flower in January, February, April to September, and November, and in fruit in April and September to January. Smitinand found it "scattered in evergreen jungles" in Thailand, while in Nepal Panigrahi & Joseph report it "abundant in midst of bamboos on hillslopes". Belchev found it only "occasional" in Assam. White refers to it as a "herbaceous perennial, a common weed" in Burma, "closely related to C. *bungei*". Koelz describes it as a "bush-tree".

The corollas are said to have been "white" on *Bangham & Bangham 1171*, *Bartlett 7148*, *Chand 6239*, *Henry 12421*, *Larsen & Larsen 31135 & 34177*, *Maxwell 75-850*, *Niyomdham & al. 328*, *Panigrahi & Naik 19329 & 19399*, *Parkinson 4277*, *Stainton & al. 7129*, *Stewart & Cheo 816*, *White 92*, and *Yates 1284*, as well as by Synge (1956), "white turning pale rose-purple" on *Koelz 23714*, "white or rose-purple" by Bodhwar & Fernandez (1968), "rose-purple to white" by the Baileys (1941, but "white" in 1976), and "pinkish" on *Smitinand 1966*.

Craib (1911) cites *Kerr 812* from Thailand and gives the species' natural distribution merely as "southeastern Asia". Fletcher (1938) cites *Kerr 812* and *Winit 416 & 1536* from Thailand, giving its distribution as Indochina, the Malay Peninsula, and Sumatra. Hallier (1918) believed the species to be native to Sikkim, Assam, the Khasi Hills, Upper Burma, and Thailand. Clarke (1885) added Lower Burma and Singapore, while Hasskarl (1855) asserts that from Singapore it was introduced into Java. Hallier comments that "Durch seine gleichfalls ganzrandigen und kahlen Blätter und gleichfalls weisslichen Blüthen scheint sich auch *Cl. coromandelianum* Spr. (*ovatum* Poir., non R. Br.) von Vorderindien dieser Art zu nähern."

P'ei (1936) cites *Henry 11390*, *12421*, *12421a*, & *12421b* from YÜnnan, but I regard these collections as representing var. *henryanum* Mold.

Nath (1960) lists what he refers to as the first record for C. *colebrokianum* from the Southern Shan States of Burma, referring to it as having "long-petioled leaves". Deb (1961) cites *Deb 1142* from Manipur.

Ridley (1923) says: "Singapore (Lobb); no doubt a wrong locality for this Indian plant. I, however, did find on Gunong Berumbun near Telom a shrub in fruit which might perhaps be this; almost a tree, leaves entire deltoid; calyx in fruit large, lobes acute red".

Rao & Joseph (1965) report the species from the Northwest Frontier Provinces (Pakistan), while Matthew (1966) reports it from West Bengal. Yamazaki (1966) gives its distribution as the Himalayas, north India, Burma, Indochina, and western China (YÜnnan). Deb and his associates (1968) list it from Bhutan, citing *Sengupta 947*.

The Baileys, in their 1941 work, credit the species as being native only to "India", but in their 1976 work corrected this to "Se.

Asia". Synge (1956) says "Eastern tropical Asia"; Bodhwar & Fernandez (1968) give the distribution, as known to them, as West Bengal, Sikkim, and Assam, where it ascends to 1800 m. altitude.

Kanjilal and his associates (1939) describe the calyx as pubescent and the fully ripe fruit as deep-green, asserting that in Assam the plant blossoms and fruits in the cold season. *Stewart & Cheo 816* includes a strip of bark.

Hasskarl's original (1855) description of his *C. foetidum β integrifolium*, repeated by Mueller (1860) is: "Forsan haec varietas speciei novas typum praebet, quam *Clerodendron ixoraeflorum* nomine salutarum et diagnosi sequenti distinguerem: Frutex ramulis petiolisq. glabriusc., inflorescentiae ramis minute seric-puberulis, f. longit. petiolatis subrotundo- v. ovato-cordatis acutis, integerr. glabriusc., in nervis subpuberulis, subt. ad sinum biglandulosis; panicula e cymis sat copiosis in ap. ramor. axillarib. fastigiatis multifl. densis sat ampla, foetente; bracteolis parvis caducis; calyce parvo glabriusc. complanato 5-fido, laciniis e b. latiuscula acuminatis; cor. candidae hypocraterimorphae tubo calycem 9 plo excedente, limbo regulari 5-fido, lacin. lin-oblongis acutiusc., marg. reflexo, patentib. -- Petiolo 4--8 poll. long., folior. diam. subaequantes, b. incrassati atro-virides; calyx 1½ lin. long., cor. tubus 12 lin. long., lac. 3 lin. long.; fr. calyce aucto vegeto viridi suffulti. -- Species maxima in hort. Bogot. ab ins. Singapore introducta."

Brandis (1906) describes *Clerodendrum colebrokianum* as common in secondgrowth forests in Sikkim from the foot of the hills to 6,000 feet altitude. Clarke (1885) refers to it as frequent in Sikkim, Assam, and the Khasia hills, citing an unnumbered Hooker f. & Thomson collection, as well as a Parish collection from Moulmein, a Benson collection from the Prome hills, and a Lobb collection from Singapore. He asserts that "*C. glandulosum*, Wall., is a specimen from the Calc. Bot. Garden, with the leaves rather more pubescent, and the bracts persistent".

Voigt (1845) reports the species cultivated in the Calcutta area, while Millspaugh (1898) records it as "Rarely cultivated" in Yucatan, Mexico. The unnumbered Herb. Hort. Bot. Reg. Kew collection, cited below, is the material used in making plate 9082 in the Botanical Magazine in 1926. Mattoon (1958) listed only a single source of this species for the horticultural trade.

Common vernacular names reported for the species are "anpui", "boka kane", "bon-bhati", "dieng-ja-kangum", "dieng-ja-rem-kynthei", "dok pung kao", "dok pung ping", "htin-yu-pan", "jahtungh-kringmau", "jahtungh-kring-mau", "kadungbi", "lukhna-buphang", "petka", "sagwe-pan", and "tzou tsing tsoi".

Nair & Rehman (1962) describe the pollen on the basis of *Natl. Bot. Gard. 2273, slide 2634*, from the eastern Himalayas. Mehra & Bawa (1968) report the chromosome number as 2n = 52 with 2 B-satellites on the basis of material collected at Gyabari, at 1200 m. altitude, Darjeeling, West Bengal (India). They refer to the plant as "A small tree found in Darjeeling and Assam hills , noting that B chromosomes are reported here "for the first time, found to pair with each other at metaphase".

Kingdon-Ward tells us that this plant is "Invariably covered with small ants". Reis & Lipp (1982) cite his *no. 18855* from India. Watt (1889) reports that the young leaves are eaten by the Lepchas in India.

Dop (1935) cites an unnumbered Balansa collection from Tonkin, one each of Massie and Spire from Laos, one of Evrard from Annam, and one of Kerr from Thailand, giving the species' distribution, as known to him, as India, Burma, Yünnan, and Malaysia. Panigrahi & Naik (1961) cite their *nos. 19329* & *19399*.

The *Trin. Bot. Gard. Herb. 1360* collection, cited below, may represent a hybrid with *C. bungei* Steud -- its leaf-blades are marginally entire, but there are glandulose foliaceous bracts present in the inflorescence and the calyx-teeth are glandulose and apically acuminate. The calyx-teeth are not nearly long enough, nor the bracts dense enough, for *C. lindleyi* Decaisne. In 1939 I cited the collection as *C. bungei*.

Clarke 16499 and *Masters 35* are mixtures with *C. bracteatum* Wall. while *Kingdon-Ward 18855* is a mixture with *C. villosum* Blume.

Material of *Clerodendrum colebrokianum* has been misidentified and distributed in some herbaria as *C. bungei* Steud., *C. foetidum* Bunge, *C. fragrans* Vent., *C. microcalyx* Ridl., *C. paniculatum* L., *C. speciosissimum* Van Geert, and even *Euphrasia* sp. On the other hand, the *Mahdi s.n.* [25/11/1968], distributed as *C. colebrokianum*, actually is *C. calamitosum* L., *C. B. Clarke 6010* is a cotype of *C. colebrokianum* var. *denticulatum* C. B. Clarke, *Forrest 9386*, *Henry 11390*, *12421*, *12421a*, & *12421b*, *Iwatsuki & al. T.8452*, *Tagawa & al. T.9297*, and *White 92* are *C. colebrokianum* var. *henryanum* Mold., *Henderson 23299* is the type collection of *C. hendersonii* Mold., and *Hassib s.n.* [24/12/1929] and *Mahdi 72*, *85*, & *s.n.* [13/4/1964] are *C. phlomidis* L. f.

Citations: PAKISTAN: Northwestern States: *Royle s.n.* (L). NEPAL: *Stainton, Sykes, & Williams 7129* (Bm). INDIA: Assam: *Belcher 226* (W--2212996), *395* (W--2213048); *Belcher & Juan 49* (Mm, W--2212888); *Chand 6155* (Mi), *6239* (Mi), *8290* (Mi); *C. B. Clarke 16499* in part (W--802581); *Herb. Bogor. 19056* (Bz); *Hooker f. & Thomson s.n.* [Mont. Khasia, 3000 ped.] (L, Mu--770, Pd, S); *Jenkins s.n.* [Assam] (L); *Kingdon-Ward 18855* in part (N); *Koelz 23714* (Mi), *32513* (Mi); *Masters 35* in part [235; 1393] (Bz--18766 in part); *Robertson s.n.* (W--369341); *Schlagintweit s.n.* [1--30 October 1855] (W--804654). Manipur: *Koelz 26263* (Mi); *Meebold 5882* (S). Sikkim: *J. D. Hooker s.n.* [Sikkim, 2000 ped.] (L, Pd); *Kuntze 7057* (N); *H. Mayer s.n.* [1887] (Mu--1694, Mu--2695); *T. Thomson s.n.* [Sikkim 1857] (Bz--19055, Bz--19057, L, Pd); *Treutler s.n.* [Sikkim Himalaya] (L). West Bengal: *C. E. Parkinson 4277* (N). BANGLADESH: *Griffith 6053/1* (L, T). BURMA: Upper Burma: *J. Anderson s.n.* [22/9/68] (W--369342). CHINA: Kwangsi: *Steward & Cheo 816* (S). THAILAND: *Herb. Roy. For. Dept. 22209* (Mi); *Kerr 812* (K); *Larsen & Larsen 34177* (Ac, Ld); *Larsen, Larsen, Nielsen, & Santisuk 31135* (Ac, Ld); *Maxwell 75-850* (Ac); *Niyomdham & al. 328* (Ac); *J. F. Rock 140* (W--1090143), *991* (W--1090583); *Smitinand 1966* [Herb. Roy. For. Dept. 9441] (Ld); *Sørensen, Larsen, & Hansen 1580* (Bm), *5284* (Bm). VIET-

NAM: Tonkin: *Balansa 3826* (K, Ld--photo, Mi--photo, N, N--photo); *Pételot 797* (W--1717000). MALAYA: Pahang: *M. R. Henderson 23299* (Bz--19054, N). Singapore: *Kuntze 6072* (N, N, N). GREATER SUNDA ISLANDS: Sumatra: *Bangham & Bangham 1171* (N); *H. H. Bartlett 7148* (Mi, N, W--1552125); *Brandts Buys 75* [Boschproefst. bb.6859] (Bz--19045, Bz--19046); *Galoengi 17* (Bz--19043); *Lörzing 4111* (Bz--19049), *11288* (Bz--19047, Bz--19048); *Nur 7447* (Bz--19050, N); *Ouwehand 359* (Bz--19051, Bz--19052, Bz--19053); *Yates 1284* (Bz--19044, Ca--252828, Mi, N). LESSER SUNDA ISLANDS: Timor: *Teijsmann s.n.* (Bz--19058). CULTIVATED: California: *C. F. Smith 1793* (Ba). England: *Herb. Hort. Bot. Reg. Kew. s.n.* [Sept. 1924] (K, K). Florida: *Avery 1664* (Ld). India: *Herb. Hort. Bot. Calcut. s.n.* (Le, Mu--779, Mu--1151); *Voigt s.n.* [H. B. Seramp.] (Cp); *Wallich 1806* (K--isotype, L--isotype). Java: *Herb. Hort. Bot. Bogor. s.n.* (Bz--19041); *Herb. Hort. Sibolangit 64* (Bz--26508, Bz--26509); *Herb. Hort. Tuin. s.n.* (Bz--19042). Singapore: *Herb. Singap. Bot. Gard. s.n.* (Br). Trinidad: *Hart s.n.* [Trin. Bot. Gard. Herb. 1360] (B, R, W--938230). LOCALITY OF COLLECTION UNDETERMINED: *Collector undetermined s.n.* (Pd).

CLERODENDRUM COLEBROKIANUM var. *DENTICULATUM* C. B. Clarke in Hook. f. Fl. Brit. India 4: 594 [as "*Clerodendron colebrookianum* var. *denticulata*"].1885: Mold., Phytol. Mem. 2: 259, 384, & 535. 1980.

Synonymy: *Clerodendron colebrookianum* var. *denticulata* C. B. Ckalke in Hook. f., Fl. Brit. India 4: 594. 1885.

Bibliography: C. B. Clarke in Hook. f., Fl. Brit. India 4: 594. 1885; Mold., Fifth Summ. 1: 272 (1971) and 2: 863 & 971. 1971; Mold., Phytol. Mem. 2: 259, 384, & 535. 1980.

This variety differs from the typical form of the species in having the leaf-blades irregularly sinuate-denticulate.

It is based on two C. B. Clarke collections from the Jaintea Hills and from Jowya, in Assam, India. The former appears to be his *no. 6010*.

Citations: INDIA: Assam: *C. B. Clarke 6010* (L--cotype).

CLERODENDRUM COLEBROKIANUM var. *FORBESII* King & Gamble, Journ. Asiat. Soc. Beng. 74 (2 extra) [Mat. Fl. Malay Penins. 21]: 838 [as "*Clerodendron colebrookianum*"]. 1909; Mold., Résumé 187 & 448. 1959.

Synonymy: *Clerodendron colebrookianum* var. *forbesii* King & Gamble, Journ. Asiat. Soc. Beng. 74 (2 extra) [Mat. Fl. Malay Penins. 21]: 838. 1909. *Clerodendrum colebrookianum* var. *forbesii* King & Gamble apud Mold., Known Geogr. Distrib. Verbenac., ed. 1, 63 & 89. 1942.

Bibliography: Gamble in King & Gamble, Journ. Asiat. Soc. Beng. 74 (2 extra) [Mat. Fl. Malay Penins. 21]: 838. 1909; Fedde & Schust., Justs Bot. Jahresber. 39 (2): 319. 1913; S. Moore, Journ. Bot. Brit. 63: Suppl. 81. 1925; Mold., Known Geogr. Distrib. Verbenac., ed. 1, 63 & 89. 1942; H. N. & A. L. Mold., Pl. Life 2: 59. 1948; Mold., Known Geogr. Distrib. Verbenac., ed. 2, 143 & 180. 1949; Mold., Résumé 187 & 448. 1959; Mold., Résumé Suppl. 3: 30. 1962; Mold., Fifth Summ. 1: 322 & 442 (1971) and 2: 863. 1971; Mold., Phytol. Mem. 2: 313 & 535. 1980; Mold., Phytologia 58: 198. 1985.

This variety differs from the typical form of the species in its leaves and branchlets being puberulous, the panicles reduced to a terminal corymb of closely packed flowers 10--12.5 cm. long, with no glands on the calyx or midrib, and the corollas dark-scarlet.

The variety is based on *Forbes 1786* from 500 feet altitude near Kagoengan Ratoe, Lampongs, Sumatra. It is possible that this taxon is the same as the controversial *C. glandulosum* Lindl., which see. Nothing is actually known to me of it except what is given in its bibliography (above). The *Burkill 6130* distributed as *C. colebrokianum* var. *forbesii*, actually is *C. bethunianum* Low.

CLERODENDRUM COLEBROKIANUM var. *HENRYANUM* Mold., Phytologia 52: 330. 1983.

Bibliography: P'ei, Mem. Sci. Soc. China 1 (3): 158--159. 1936; Mold., Phytologia 52: 330 (1983) and 54: 238 & 239. 1983.

This variety differs from the typical form of the species in having the calyx, both during anthesis and in fruit, apically merely minutely 5-dentate or 5-denticulate.

The variety is based on *A. Henry 12421a* from Szeneo, YUnnan, China, deposited in the Britton Herbarium at the New York Botanical Garden, and it is probable that *Henry 12421* & *12421b*, from the type locality, are at least topotypes.

Collectors describe the plant as a shrub, 1--4 m. tall, growing in dense mountain and deep mixed forests, in either sunny or lightly shaded situations, at 700--1374 m. altitude, in flower in September, and in fruit in August. The corollas are described as having been "white" on *Henry 12421a*, *Iwatsuki & al. T.9540*, and *Tagawa & al. 9297*.

Citations: BURMA: Upper Burma: *O. E. White 92* (W--2073140). CHINA: YUnnan: *Forrest 9386* (S); *A. Henry 11390* (W--458382), *12421* (W--459087), *12421a* (N--type), *12421b* (N, Qu). THAILAND: *Iwatsuki, Fukuoka, & Chintayungkun T.9540* (Ac); *Iwatsuki, Koyama, Hutch, & Chintayungkun T.8452* (Ac); *Tagawa, Iwatsuki, Koyama, Fukuoka, Nalampoon, & Chintayungkun T.9297* (Ac).

CLERODENDRUM COMANS Mold., Amer. Journ. Bot. 38: 321--322. 1951.

Bibliography: Mold., Amer. Journ. Bot. 38: 321--322. 1951; Mold. in Humbert, Fl. Madag. 174: 153, 222--224, & 267, fig. 36 (1 & 2). 1956; Mold., Résumé 155 & 448. 1959; G. Taylor, Ind. Kew. Suppl. 12: 36. 1959; Mold., Fifth Summ. 1: 259 (1971) and 2: 864. 1971; Mold., Phytol. Mem. 2: 248 & 535. 1980; Mold., Phytologia 58: 188. 1985.

Illustrations: Mold. in Humbert, Fl. Madag. 174: 223, fig. 36 (1 & 2). 1956.

A shrub or tree; branchlets very slender, obtusely tetragonal, very densely fulvous-tomentellous or short-pubescent; nodes not annulate; principal internodes 0.8--2 cm. long; leaves decussate-opposite; leaf-scars rather prominent; petioles very slender, 3--9 mm. long, densely short-pubescent with brownish hairs; leaf-blades membranous, rather uniformly dark-green on both surfaces, brunnescent in drying, narrowly elliptic, 6--10 cm. long, 1.6--2 cm. wide, attenuate-acute at both ends, marginally entire, rather sparsely puberulent on both surfaces.

[to be continued]